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JOHN L. FARLEY, DIRECTOR

COMMERCIAL FISHERIES REVIEW

A review of developments and news of the fishery industries
prepared in the **BRANCH OF COMMERCIAL FISHERIES**

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Mailed free to members of the fishery and allied industries. Address correspondence and requests to the: Director, Fish and Wildlife Service, U. S. Department of the Interior, Washington 25, D. C.

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SHELLFISH EXPLORATIONS IN THE YAKUTAT BAY AREA, ALASKA, BY THE JOHN N. COBB, SPRING 1953

By Edward A. Schaefers* and Keith A. Smith*

CONTENTS

SUMMARY

The fifth in a series of shellfish explorations in southeastern Alaska waters was made during March and early April 1953 by the Service's exploratory fishing vessel John N. Cobb. Fishing operations were carried out in Yakutat Bay proper, and in the adjacent Pacific Ocean waters off Phipps Peninsula. Gear fished included a 20-foot beam trawl, small otter trawl, scallop dredge, shrimp traps, and crab pots.

Good concentrations of shrimp were located with the beam trawl between Kame Stream and Blizhni Point, with the best catch yielding 1,020 pounds per hour. Off Krutoi Island shrimp were taken at the rate of 600 pounds per hour. Fairly consistent catches of shrimp were taken in a "trough" between Knight Island and Blizhni Point. A total of 9 drags in this locality averaged 202 pounds of shrimp per hour.

A limited number of otter-trawl drags off Phipps Peninsula produced negligible amounts of shrimp and fish. Beam-trawl drags in this area also produced negligible results.

Shrimp traps set from the vicinity of Gregson Island to north of Knight Island were generally productive, with sets usually averaging between 1 and $1\frac{1}{2}$ pounds of spot shrimp and 1 to 2 pounds of coon-stripe shrimp per trap.

Dungeness crab catches were negligible.

BACKGROUND

Shellfish explorations in certain southeastern Alaskan waters have been carried out by the U. S. Fish and Wildlife Service's exploratory fishing vessel John N. Cobb since the spring of 1950. The fifth exploration in this series was undertaken during March and April 1953. The main objective was to investigate the shrimp and other shellfish resources of Yakutat Bay and adjacent Pacific Ocean waters.

Fishing operations were carried on from March 10 to April 8. The area explored included Yakutat Bay and the adjacent Pacific Ocean waters near Phipps Peninsula (fig. 1).

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During this trip 67 beam-trawl drags, 7 otter-trawl drags, and 5 scallop-dredge drags were made; and a total of 265 individual shrimp traps and 77 individual crab

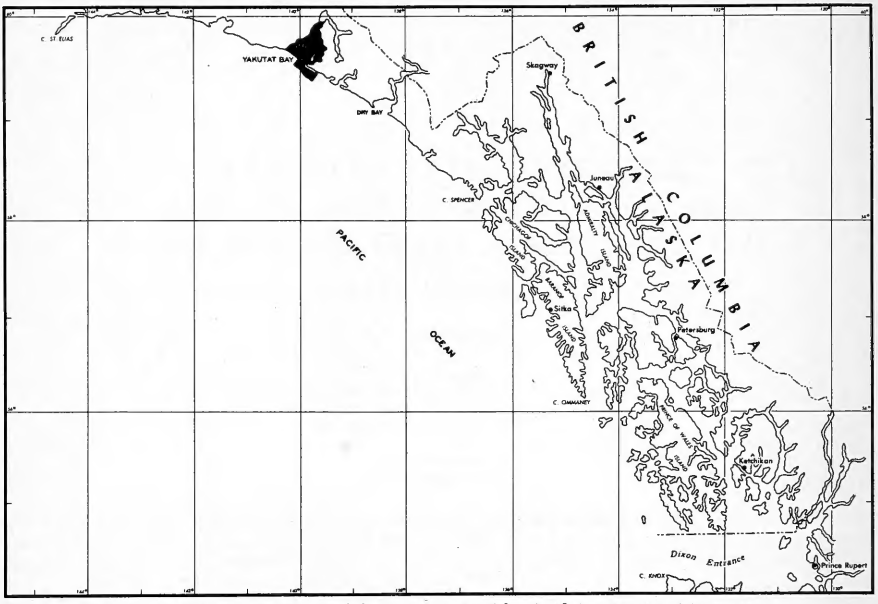


Fig. 1 - Southeastern Alaska. Shaded area was explored for shellfish in March and April 1953.

pots were set. The location of each drag and each trap or pot set is diagrammatically illustrated in figure 5. Detailed information concerning shrimp and scallop catches for each drag is presented in the fishing log (table 1). Data concerning shrimp-trap sets and crab-pot sets are given in tables 2 and 3, respectively.

GEAR

The majority of the drags were made with a 20-foot beam trawl, constructed to the same specifications as the beam trawl used on previous shellfish explorations of the John N. Cobb. For detailed specifications of this gear see Ellson and Livingstone (1952).

The otter trawl used was a small West Coast box-type trawl (fig. 2). The specifications are:

Section of Net	Length in Meshes	Mesh Size[1]/	Thread
Wings	200	$1\frac{1}{2}$ inch	24
Body	200	$1\frac{1}{2}$ inch	24
Intermediate	100	$1\frac{1}{2}$ inch	24
Cod end	50	$1\frac{1}{4}$ inch	27

1/All mesh sizes refer to stretched measure.

The head rope was 3/8-inch-diameter wire rope, and the foot rope was $\frac{1}{2}$-inch-diameter wire rope, both wrapped with manila. The doors measured $2\frac{1}{2}$ feet by 5 feet. Fastened along the head rope were 14 glass floats, 4 inches in diameter. In addition, 4 round aluminum floats 8 inches in diameter were fastened to the head

rope: 2 at the center and 1 at the top forward end of each wing of the net. A 4-foot length of chain was attached along the bottom of each wing, near its forward end.

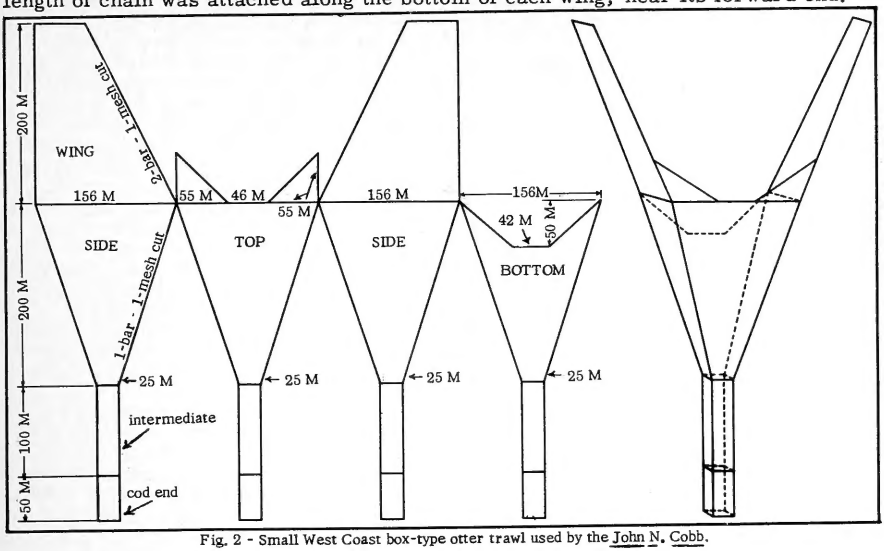


Fig. 2 - Small West Coast box-type otter trawl used by the John N. Cobb.

The scallop dredge was of the New Bedford type commonly used in the Atlantic Coast sea-scallop fishery (Royce 1946).

Four types of galvanized iron shrimp traps were fished during this exploration. In addition to the three types of galvanized iron traps used in 1952 (Schaefers 1953), a 4-tunnel non-collapsible iron trap, 24-inches square, similar in design to traps previously used was also fished. The top frame was $\frac{1}{2}$-inch-diameter galvanized iron, and the bottom frame was 5/8-inch-diameter galvanized iron. Four $\frac{1}{2}$-inch-diameter galvanized iron rods, welded at each end to the corners of the top and bottom frames, formed the sides of the frame. The lid frame was 3/8-inch-diamter galvanized iron, and was attached to the top frame on one side by 14-gauge wire wound around both frames to form hinges. The lid, when closed, was secured to the opposite side of the top frame with twine. The tunnel entrances were formed by 3-inch-diameter galvanized iron rings, located in the center of each vertical side. The tunnel indentations were formed by cross-tying the opposing rings with seine twine. The frame and the tunnels were covered with 18-thread $1\frac{1}{4}$-inch stretched-mesh cotton netting.

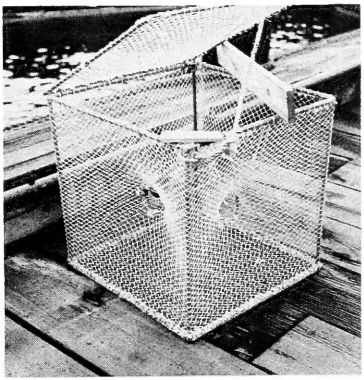


Fig. 3 - Four-tunnel non-collapsible galvanized iron shrimp trap.

Frozen herring was used as bait in all trap sets. The herring was cut into pieces, placed in a net bait bag, and suspended from the tunnel crossties. A motor launch was frequently used simultaneously with the John N. Cobb in setting and hauling shrimp traps. The launch was used exclusively for setting and hauling traps in areas inaccessible to the larger vessel.

The crab pots used were of the two-tunnel, circular Pacific Coast ocean type, 38 inches in diameter (fig. 4). The top frame was 5/8-inch-diameter construction steel, and the bottom frame was 3/4-inch-diameter construction steel. Six 5/8-inch-diameter steel rods, 12 inches in length, were welded to the top and bottom frames, forming the low cyclindrical shaped frame of the pot. To prevent electrolytic action, the frame was wrapped with strips of automobile tire inner tube rubber before it was covered with 19-gauge stainless steel wire woven to a mesh size of approximately 3 inches between bars (open mesh). The lid frame was made of 3/8-inch-diameter stainless steel, and was covered with the same material as the pot frame. The tunnels were formed by weaving the mesh inward from opposite sides to tunnel entrance frames of 3/16-inch-diameter stainless steel. The tunnels were 19 inches wide and 12 inches high on the outside, tapering to 8 inches by 4 inches at the tunnel entrance. Each tunnel extended inward approximately 13 inches towards the center of the trap and was held in place by stainless steel wire lashings between the tunnel entrance frames. Triggers of stainless steel wire were hung from the top of the tunnel entrance frame, and were free to swing inward as the crab entered the pot, but could not swing outward, thus preventing a crab's escape. The pots were baited with frozen herring cut into pieces and placed in wooden bait boxes, which were suspended between the tunnel entrance frames.

Fig. 4 - Circular ocean-type crab pot.

YAKUTAT BAY AREA

Yakutat Bay is 16 miles wide at its entrance between Ocean Cape and Point Manby. It extends inland in a northeasterly direction for 15 miles, where it is 10 miles wide between Blizhni Point and Knight Island. The bay narrows and continues in the same direction for 8 miles farther to Point Latouche, where it is 3 miles wide. The continuation northward is known as Disenchantment Bay (Anonymous 1943). Ice covered Disenchantment Bay in the vicinity of Haenke Island and prevented the John N. Cobb from exploring the fishing possibilities of Russel Fiord, an arm extending 28 miles southeastward from the head of Disenchantment Bay.

FISHING RESULTS

As fishing was carried on with a 20-foot beam trawl, catches were presumably smaller than would have been obtained with a commercial-size trawl, which normally has a 40-foot beam. The findings reported in this paper apply to the period March 10 to April 8, 1953.

Except for one drag made near Point Latouche, all fishing operations in Yakutat Bay proper were carried out in the area between the entrance of the Bay and Blizhni Point (fig. 5). Favorable dragging bottom was found in most portions of this area, and one of the drags mudded down. Only two of the drags in this area encountered obstructions, with one resulting in a broken beam and the other in a torn net.

Commercial quantities of pink shrimp (Pandalus borealis) were taken with the beam trawl from off Kame Stream to off Blizhni Point. Nine drags in this locality at depths of 30 to 54 fathoms averaged 484 pounds of pink shrimp per hour,[2/] with two of the best drags (Nos. 74 and 75) averaging 904 pounds of pink shrimp per hour

2/To permit ready comparison of catch information, catch results have been converted to a rate-per-hour basis, as some variation occurred in the duration of individual drags during this exploration.

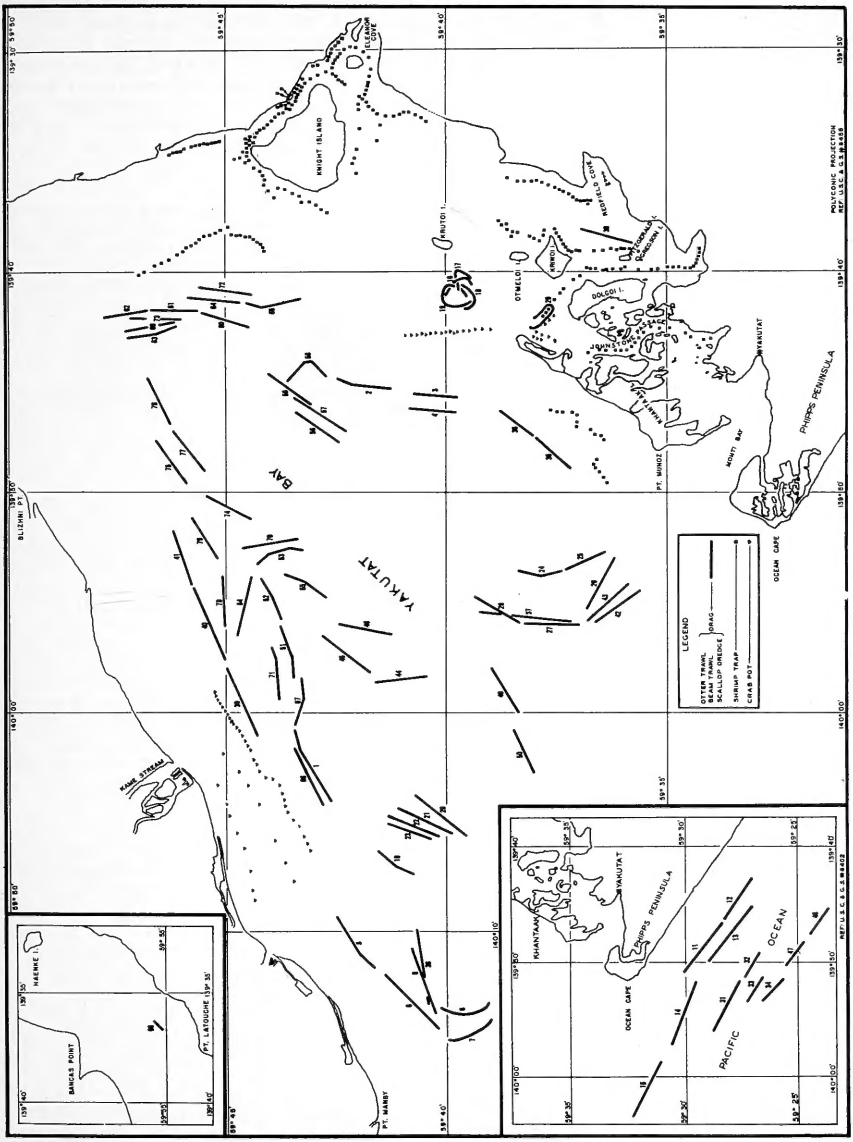


Fig. 5 - Location of beam-trawl, otter-trawl and scallop-dredge drags, and shrimp-trap and crab-pot sets in the Yakutat Bay area.

which ran 82 and 80 whole (heads on) shrimp per pound, 3/ respectively. Side-stripe shrimp (Pandalopsis dispar) were present in insignificant quantities in all of the above drags, and coon-stripe shrimp (Pandalus hypsinotus) appeared in insignificant quantities in approximately one-half of these drags. A single drag in this same locality at depths of 55 to 61 fathoms yielded 186 pounds of shrimp per hour consisting of 67 percent pink and 33 percent side-stripe. The bottom dragged was predominately gray or gray-blue mud, free of obstructions and suitable for drags of several hours duration. All catches were quite clean and relatively free of miscellaneous invertebrates, scrap fish, and debris.

Fair catches of shrimp were made east of this locality in a "trough" at depths of 71 to 97 fathoms. A total of 9 beam-trawl drags in this trough averaged 202 pounds of shrimp per hour. The catch consisted of 57 percent pink and 43 percent side-stripe shrimp. Individual drags yielded from 50 to 290 pounds of shrimp per hour. The bottom dragged in this area was also predominately gray or gray-blue mud. No obstructions were encountered, and drags of at least two hours duration are possible in this area. As a rule, catches were fairly clean, but considerable debris was present in a few of the drags.

Fig. 6 - Emptying a shrimp catch from the beam trawl.

Commercial quantities of pink shrimp were also taken in a "depression" off Krutoi Island. A drag at 45 to 60 fathoms (No. 19) yielded pink shrimp at the rate of 600 pounds per hour. These were of good size, running 67 whole (heads on) shrimp per pound. Three other drags at depths of 54 to 73 fathoms averaged 121 pounds of shrimp per hour, consisting of 60 percent side-stripe and 40 percent pink. All catches in this locality were clean. The drags were circular because of the limited dragging area at desirable depths.

Fairly consistent catches of shrimp were taken at depths of 43 to 59 fathoms approximately 5 miles west of Knight Island. Four drags (Nos. 56 to 59) averaged 149 pounds of shrimp per hour.

Results of drags in the rest of Yakutat Bay proper were poor, with few shrimp taken and most of the catches containing large numbers of brittle stars and basket stars.

Small numbers (up to 49 per drag) of scallops (Patinopecten caurinus) appeared in beam-trawl and otter-trawl catches. Drags made with the scallop dredge gave poor results, with the best of 5 drags yielding only 11 scallops. 4/

Otter-trawl drags were confined to Pacific Ocean waters off Phipps Peninsula. Although the echo sounder indicated favorable trawling bottom, 3 of the 7 otter-trawl drags resulted in torn nets, and shrimp catches were negligible. Results of beam-trawl drags in this area were also negligible.

3/For complete details of number of whole shrimp per pound by species for all drags see table 1.

4/For details of scallop catches see table 1.

Shrimp traps set from the vicinity of Gregson Island to north of Knight Island were generally productive. One set of 19 traps along the east shore of the mainland from opposite the middle of Knight Island to Eleanor Cove averaged slightly over 2 pounds of spot shrimp (Pandalus platyceros) per trap (table 2) and a total catch of $3\frac{1}{2}$ pounds of coon-stripe shrimp. The spot shrimp from this set averaged 13 whole (heads on) shrimp per pound, and the coon-stripe shrimp averaged 33 per pound. Catches of spot shrimp per trap in this set varied from several shrimp to 5 pounds. Other trap sets in this area averaged approximately 1 to $1\frac{1}{2}$ pounds of spot and 1 to 2 pounds of coon-stripe shrimp per trap. As traps were set over a wide area and catches per trap varied considerably, increased local knowledge would probably raise the average catch per trap by eliminating the setting of traps in the least productive locations.

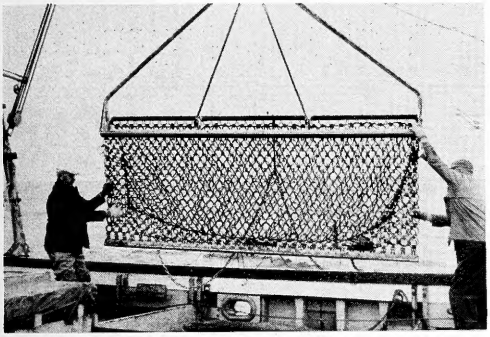


Fig. 7 - Hoisting the scallop dredge aboard the John N. Cobb.

Catches of spot shrimp from traps set in Johnstone Passage and off Khantaak Island were poor.

Most of the crab pots fished during this exploration were set on the west side of the Bay in the vicinity of Kame Stream. Catches of dungeness crab (Cancer magister) were negligible (table 3). Crab pots set north of Khantaak Island and in Redfield Cove produced only tanner crab (Chionoecetes bairdii).

MISCELLANEOUS CATCHES

In addition to the shrimp and scallops taken in beam-trawl drags in Yakutat Bay, flatfish including starry flounder (Platichthys stellatus), flathead "sole" (Hippoglossoides elassodon), butter "sole" (Isopsetta isolepis), and arrow-toothed flounder (Atheresthes stomias) were present in most drags in small quantities. Other fish commonly occurring in beam-trawl drags included eel pouts (Zoarcidae), small whiting (Theragra chalcogramma), eulachon (Thaleichthys pacificus), and sea poachers (Agonidae). Tanner crabs also occurred frequently. Brittle stars and basket stars were present in large numbers in drags near the entrance, but were generally absent in localities of best shrimp catches farther up the Bay.

Otter-trawl catches off Phipps Peninsula usually contained small numbers of eulachon, arrow-toothed flounder, skates (Rajidae), numerous tomcod (Microgadus proximus), an occasional tanner crab, and many brittle and basket stars. No commercial quantities of food fish were taken in any drags during this exploration.

LITERATURE CITED

Anonymous
1943. United States Coast Pilot, Alaska, Part I, Dixon Entrance to Yakutat Bay, Ninth (1943) edition, United States Coast and Geodetic Survey.

Ellson, J. G. and Livingston, Jr., R.
1952. The John N. Cobb's shellfish explorations in certain southeastern Alaskan waters, Spring 1951, Commercial Fisheries Review, vol. 14, no. 4 (April), pp. 1-20 (also issued as Separate No. 311, U. S. Fish and Wildlife Service, Washington, D. C.).

Royce, W. F.
1946. Gear used in the sea scallop fishery, Commercial Fisheries Review, vol. 8, no. 12 (December), pp. 7-11 (also issued as Fishery Leaflet No. 225, April 1947, U. S. Fish and Wildlife Service, Washington, D. C.).

Schaefers, E. A.
1953. Shellfish explorations in certain southeastern Alaskan waters by the John N. Cobb, Spring 1952. Commercial Fisheries Review, vol. 15, no. 3 (March), pp. 1-18 (also issued as Separate No. 343, U. S. Fish and Wildlife Service, Washington, D. C.).

Table 1--Fishing Log--Beam-Trawl Drags, Otter-Trawl Drags, and Scallop-Dredge Drags in the Yakutat Bay Area, Alaska, Spring 1953

Drag Number	1 (B. T.)[1]	2 (B. T.)	3 (B.T.)	4 (B. T.)	5 (B. T.)	6 (B. T.)	7 (B. T.)	8 (B. T.)	9 (B. T.)	10 (B. T.)
Date	3/10/53	3/11/53	3/11/53	3/11/53	3/12/53	3/12/53	3/12/53	3/12/53	3/12/53	3/12/53
Latitude N.	59° 42.7'	59° 42.6'	59° 39.8'	59° 40.0'	59° 42.6'	59° 41.4'	59° 39.9'	59° 39.1'	59° 40.8'	59° 40.8'
Longitude W.	140° 04.0'	139° 44.8'	139° 45.8'	139° 46.3'	140° 09.3'	140° 12.0'	140° 14.9'	140° 13.2'	140° 10.8'	140° 07.3'
Course, Magnetic [2]	030°	172°	335°	155°	210°	195°	154°	276°	220°	356°
Depth Range in Fathoms	50 - 53	65 - 73	97 - 100	99 - 100	40 - 44	38 - 46	31 - 45	45-49	47 - 49	51 - 53
Type of Bottom	gy. M.	gy. M.	gy. M.	gy. M.	gy. M. & S.	gy. M. & S.	gy. M.	gy. M.	gy. M.	gy. M.
Trawling Bottom	Clear	Clear	Clear	Clear	Clear	Clear	Snag	Clear	Clear	Clear
Tide	Ebb	Ebb	Low slack	Flood	Ebb	Ebb	Ebb	Ebb	Ebb	Low slack
Time on Bottom in Minutes	60	30	30	30	30	30	30	30	30	30
Shrimp Catch in Pounds: (Whole Shrimp per Pound) [3]										
Pink	2 (71)	Trace	Trace	Trace	Trace	Trace	Trace	--	Trace	Trace
Side-stripe	6 (31)	18 (26)	10¾ (29)	9¼ (25)	Trace	Trace	Trace	4 (25)	10⅝ (26)	8 (26)
Coon-stripe	Trace [4]	Trace	Trace	--	--	--	--	--	--	--
Spot	--	Trace	--	--	--	--	--	--	--	--
Total Shrimp Catch in Pounds	8	18	10¾	9¼	--	--	--	4	10⅝	8
Total Shrimp Catch Hourly Basis	8	36	21	18½	--	--	--	8	21¼	16
Number of Scallops	7 (28) [5]	--	1 (-)	--	--	--	--	15 (20)	26 (22)	--
Remarks	--	--	--	--	--	--	Net torn	--	--	--

Drag Number	11 (O. T.)[1]	12 (O. T.)	13 (O. T.)	14 (O. T.)	15 (O. T.)	16 (B. T.)	17 (B. T.)	18 (B. T.)	19 (B. T.)	20 (B. T.)
Date	3/13/53	3/13/53	3/13/53	3/13/53	3/13/53	3/15/53	3/15/53	3/15/53	3/15/53	3/16/53
Latitude N.	59° 30.2'	59° 28.3'	59° 27.0'	59° 29.5'	59° 31.0'	59° 40.1'	59° 39.8'	59° 39.7'	59° 39.8'	59° 39.6'
Longitude W.	139° 50.6'	139° 46.3'	139° 45.1'	139° 51.7'	139° 58.6'	139° 41.1'	139° 40.8'	139° 40.6'	139° 41.4'	140° 05.6'
Course, Magnetic [2]	100°	096°	280°	261°	267°	089° (Circular)	047° (Circular)	178° (Circular)	299° (Circular)	009°
Depth Range in Fathoms	25 - 28	28 - 31	40 - 43	39 - 43	40 - 47	54 - 58	57 - 73	56 - 66	45 - 60	71 - 74
Type of Bottom	bu. M.	bu. M. & S.	bu. M. & S.	bu.-gy. M. & S.	bu.-gy. M. & S.	gy.-bu. M.	gy.-bu. M.	gy.-bu. M.	gy.-bu. M.	gy. M.
Trawling Bottom	Clear	Snag	Clear	Clear	Snag	Clear	Clear	Clear	Clear	Clear
Tide	Flood	High slack	Ebb	Ebb	Ebb	High slack	Ebb	Ebb	Ebb	Flood
Time on Bottom in Minutes	60	48	60	60	60	30	30	30	45	30
Shrimp Catch in Pounds: (Whole Shrimp per Pound) [3]										
Pink	--	--	Trace [4]	--	--	15 (115)	18¾ (98)	38 (82)	450 (67)	Trace
Side-stripe	--	--	--	--	--	62 (22)	10 (31)	37 (39)	Trace	7¾ (23)
Coon-stripe	--	--	--	--	--	Trace	--	Trace	Trace	--
Spot	--	--	--	--	--	Trace	--	--	--	--
Total Shrimp Catch in Pounds	--	--	--	--	--	77	28¾	75	450	7¾
Total Shrimp Catch Hourly Basis	--	--	--	--	--	154	57½	150	600	15½
Number of Scallops	--	--	6 (25) [5]	22 (25)	--	--	--	--	--	14 (28)
Remarks	--	Net torn	--	--	Net torn	--	--	--	--	--

For explanation of footnotes see p. 11.

Table 1—Fishing Log--Beam-Trawl Drags, Otter-Trawl Drags, and Scallop-Dredge Drags in the Yakutat Bay Area, Alaska, Spring 1953 (Continued)

Drag Number	21 (B. T.)[1]	22 (B. T.)	23 (B. T.)	24 (B. T.)	25 (B. T.)	26 (B. T.)	27 (B. T.)	28 (B. T.)	29 (B. T.)	30 (B. T.)
Date	3/16/53	3/16/53	3/16/53	3/18/53	3/18/53	3/18/53	3/18/53	3/19/53	3/19/53	3/19/53
Latitude N.	59° 41.2'	59° 40.2'	59° 41.4'	59° 38.4'	59° 37.3'	59° 36.2'	59° 37.0'	59° 38.4'	59° 38.0'	59° 36.9'
Longitude W.	140° 04.3'	140° 05.6'	140° 05.0'	139° 53.5'	139° 53.5'	139° 53.0'	139° 56.0'	139° 56.0'	139° 42.1'	139° 38.2'
Course, Magnetic[2]	177°	352°	167°	167°	128°	271°	332°	002°	120° (Circular)	167°
Depth Range in Fathoms	56 - 64	46 - 52	34 - 40	76 - 77	74 - 76	75 - 77	76 - 80	80	48 - 59	72 - 78
Type of Bottom	gy. - bu. M.	gy. M. & St.	gy. M.	gy. M.	bu. - gy. M.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M.
Trawling Bottom	Clear	Clear	Snag	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Tide	Flood	High slack	Ebb	Flood	Flood	High slack	Ebb	Ebb	Low slack	Flood
Time on Bottom in Minutes	30	30	30	30	30	30	30	30	30	30
Shrimp Catch in Pounds: (Whole Shrimp per Pound)[3]										
Pink	Trace[4]	3½ (61)	---	Trace	Trace	Trace	Trace	Trace	14 (128)	37 (127)
Side-stripe	26½ (28)	1 (38)	---	35 (27)	17 (24)	2½ (24)	10½ (21)	Trace	Trace	24 (29)
Coon-stripe	Trace	Trace	---	---	---	---	---	---	Trace	---
Spot	---	---	---	---	---	---	---	---	Trace	---
Total Shrimp Catch in Pounds	26½	4½	---	35	17	2½	10½	---	14	61
Total Shrimp Catch Hourly Basis	53	9	---	70	34	5	21	---	28	122
Number of Scallops	---	---	---	---	---	1 (-)	38 (14)[5]	---	---	---
Remarks	---	---	Beam broke	---	---	---	---	---	---	---

Drag Number	31 (O. T.)[1]	32 (O. T.)	33 (B. T.)	34 (B. T.)	35 (B. T.)	36 (B. T.)	37 (S. D.)	38 (S. D.)	39 (S. D.)	40 (S. D.)
Date	3/20/53	3/20/53	3/20/53	3/20/53	3/20/53	3/20/53	3/21/53	3/21/53	3/23/53	3/23/53
Latitude N.	59° 28.8'	59° 27.5'	59° 26.5'	59° 26.5'	59° 37.2'	59° 38.0'	59° 37.2'	59° 40.5'	59° 44.4'	59° 45.1'
Longitude W.	139° 56.0'	139° 51.3'	139° 51.1'	139° 53.3'	139° 48.9'	139° 47.5'	139° 55.9'	140° 13.0'	140° 01.1'	139° 57.7'
Course, Magnetic[2]	090°	095°	271°	091°	012°	008°	338°	052°	037°	037°
Depth Range in Fathoms	61 - 67	61 - 63	71 - 73	80 - 82	88 - 96	97 - 99	77 - 80	45 - 48	31 - 33	30 - 34
Type of Bottom	gy. M.	gy. M.	gy. M.	gy. M.	gy. - bu. M.	gy. - bu. M.	gy. M.	gy. M.	gy. M. & St.	gy. M. & St.
Trawling Bottom	Snag	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Tide	Ebb	Low slack	Flood	Flood	Flood	Flood	Flood	Flood	Ebb	Ebb
Time on Bottom in Minutes	60	30	30	30	30	30	30	30	30	30
Shrimp Catch in Pounds: (Whole Shrimp per Pound)[3]										
Pink	---	Trace[4]	Trace	Trace	Trace	7 (109)	---	---	---	---
Side-stripe	---	---	Trace	Trace	26 (27)	32 (32)	---	---	---	---
Coon-stripe	---	---	---	---	---	---	---	---	---	---
Spot	---	---	---	---	---	---	---	---	---	---
Total Shrimp Catch in Pounds	---	---	---	---	26	39	---	---	---	---
Total Shrimp Catch Hourly Basis	---	---	---	---	52	78	---	---	---	---
Number of Scallops	1 (-)	31 (14)[5]	---	---	8 (14)	6 (12)	11 (18)	5 (20)	---	---
Remarks	Net torn	---	---	---	---	---	---	---	---	---

For explanation of footnotes see p. 11.

Table 1—Fishing Log--Beam-Trawl Drags, Otter-Trawl Drags, and Scallop-Dredge Drags in the Yakutat Bay Area, Alaska, Spring 1953 (Continued)

Drag Number	41 (B. D.)[1]	42 (B. T.)	43 (B. T.)	44 (B. T.)	45 (B. T.)	46 (B. T.)	47 (B. T.)	48 (B. T.)	49 (B. T.)	50 (B. T.)
Date	3/23/53	3/26/53	3/26/53	3/26/53	3/26/53	3/26/53	3/27/53	3/27/53	3/28/53	3/28/53
Latitude N.	59° 45.9'	59° 35.6'	59° 36.8'	59° 40.5'	59° 41.8'	59° 42.5'	59° 25.5'	59° 24.5'	59° 39.0'	59° 38.5
Longitude W.	139° 51.2'	139° 51.4'	139° 55.8'	139° 58.4'	139° 58.2	139° 56.0'	139° 50.3'	139° 47.5'	139° 58.0'	140° 00.8'
Course, Magnetic[2]	040°	295°	109°	321°	008°	162°	100°	099°	211°	216°
Depth Range in Fathoms	29 - 33	73 - 77	71 - 77	69 - 74	63 - 67	64 - 72	71 - 73	71 - 73	71 - 79	61 - 85
Type of Bottom	gy. M. & St.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M.
Trawling Bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Tide	Low slack	Ebb	Ebb	Ebb	Low slack	Flood	Ebb	Ebb	High slack	Ebb
Time on Bottom in Minutes	30	30	30	30	30	30	30	30	30	24
Shrimp Catch in Pounds: (Whole Shrimp per Pound)[3]										
Pink	--	--	Trace[4]	7 (68)	12 (108)	11 (71)	Trace	Trace	10 (97)	Trace
Side-stripe	--	--	18½ (30)	21 (28)	34 (38)	32 (32)	Trace	--	20 (36)	9½ (30)
Coon-stripe	--	--	--	--	--	--	--	--	--	--
Spot	--	--	--	--	--	--	--	--	--	--
Total Shrimp Catch in Pounds	--	--	18½	28	46	43	--	--	30	9½
Total Shrimp Catch Hourly Basis	--	--	37	56	92	86	--	--	60	83½
Number of Scallops	--	--	34 (110)[5]	49 (28)	15 (37)	44 (21)	2 (-)	2 (-)	13 (21)	--
Remarks	--	Net not on bottom	--	--	--	--	--	--	--	End of drag

Drag Number	51 (B. T.)[1]	52 (B. T.)	53 (B. T.)	54 (B. T.)	55 (B. T.)	56 (B. T.)	57 (B. T.)	58 (B. T.)	59 (B. T.)	60 (B. T.)
Date	3/31/53	3/31/53	3/31/53	3/31/53	3/31/53	3/31/53	4/1/53	4/1/53	4/2/53	4/2/53
Latitude N.	59° 43.6'	59° 43.9'	59° 44.4'	59° 44.8'	59° 43.8'	59° 43.5'	59° 42.3'	59° 43.7'	59° 44.1'	59° 44.6'
Longitude W.	139° 58.5'	139° 55.8'	139° 53.3'	139° 56.6'	139° 53.8'	139° 46.4'	139° 47.3'	139° 44.9'	139° 44.7'	139° 42.6'
Course, Magnetic[2]	067°	041°	115°	071°	173°	186°	003°	184°	187°	180°
Depth Range in Fathoms	50 - 52	49 - 51	41 - 47	37 - 46	55 - 61	46 - 49	50 - 55	51 - 59	43 - 52	87 - 92
Type of Bottom	gy. - bu. M.	gy. M.	gy. - bu. M.	gy.-bu. M. &O.	gy. M.	gy.-bu. M. &St.	gy. M.	gy. M.	gy. M. & O.	gy. -bu. M.
Trawling Bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Tide	Flood	Flood	Flood	Ebb	Ebb	Ebb	High slack	Ebb	Ebb	High slack
Time on Bottom in Minutes	30	30	30	30	30	30	30	30	30	30
Shrimp Catch in Pounds: (Whole Shrimp per Pound)[3]										
Pink	150 (77)	184 (76)	250 (73)	30 (71)	62 (85)	53 (78)	58 (75)	70 (66)	50 (74)	92 (119)
Side-stripe	Trace[4]	Trace	Trace	Trace	31 (29)	8 (28)	32 (23)	8 (22)	18 (30)	52 (88)
Coon-stripe	--	--	--	--	--	Trace	Trace	Trace	--	--
Spot	--	--	--	--	--	--	--	--	--	--
Total Shrimp Catch in Pounds	150	184	250	30	93	61	90	78	68	144
Total Shrimp Catch Hourly Basis	300	368	500	60	186	122	180	156	136	288
Number of Scallops	--	5 (20)[5]	1 (-)	--	--	--	15 (16)	--	13 (21)	--
Remarks	--	--	--	--	--	--	--	--	--	--

For explanation of footnotes see p. 11.

Table 1—Fishing Log--Beam-Trawl Drags, Otter-Trawl Drags, and Scallop-Dredge Drags in the Yakutat Bay Area, Alaska, Spring 1953 (Continued)

Drag Number	61 (B. T.)[1]	62 (B. T.)	63 (B. T.)	64 (B. T.)	65 (B. T.)	66 (B. T.)	67 (B. T.)	68 (B. T.)	69 (B. T.)	70 (B. T.)
Date	4/2/53	4/2/53	4/3/53	4/3/53	4/3/53	4/4/53	4/4/53	4/4/53	4/4/53	4/5/53
Latitude N.	59° 45.7'	59° 46.8'	59° 46.2'	59° 45.9'	59° 44.6'	59° 42.9'	59° 43.6'	59° 55.1'	59° 47.4'	59° 43.5'
Longitude W.	139° 41.7'	139° 41.7'	139° 42.5'	139° 41.2'	139° 42.4'	140° 04.2'	140° 00.6'	139° 36.7'	139° 42.7'	139° 52.2'
Course, Magnetic[2]	332°	322°	312°	157°	170°	032°	077°	016°	141°	322°
Depth Range in Fathoms	84 - 89	75 - 83	71 - 78	95 - 97	95 - 97	47 - 51	52 - 55	151	75 - 80	43 - 49
Type of Bottom	Gy.-bu. M. & S.	Gy. M. St. & Blds.	Gy. M. & G.	Gy.-bu. M.	Gy.-bu. M.	Gy. M. & G.	Gy.-bu. M & St.	Gy. M. & blds.	Gy. M.	Gy. M.
Trawling Bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Snag	Clear	Clear
Tide	Ebb	Ebb	Flood	Ebb	Ebb	Low slack	Flood	Flood	High slack	Flood
Time on Bottom in Minutes	30	30	30	30	30	30	30	10	30	30
Shrimp Catch in Pounds: (Whole Shrimp per Pound)[3]										
Pink	65 (106)	22 (109)	67 (101)	32 (112)	6 (102)	24 (73)	18 (71)	Trace[4]	123 (86)	88 (76)
Side-stripe	61 (31)	28 (27)	71 (31)	40 (34)	19 (27)	8 (43)	Trace	Trace	22 (59)	Trace
Coon-stripe	—	—	—	—	—	—	Trace	—	—	—
Spot	—	—	—	—	—	—	—	—	—	—
Total Shrimp Catch in Pounds	126	50	138	72	25	32	18	—	145	88
Total Shrimp Catch Hourly Basis	252	100	276	144	50	64	36	—	290	176
Number of Scallops	—	—	1 (-)	—	—	—	—	—	—	—
Remarks	—	—	—	—	—	—	—	Net snagged	—	—

Drag Number	71 (B. T.)[1]	72 (B. T.)	73 (B. T.)	74 (B. T.)	75 (B. T.)	76 (B. T.)	77 (B. T.)	78 (B. T.)	79 (B. T.)
Date	4/5/53	4/6/53	4/6/53	4/6/53	4/6/53	4/7/53	4/7/53	4/7/53	4/7/53
Latitude N.	59° 43.9'	59° 44.5'	59° 47.3'	59° 44.5'	59° 46.0'	59° 46.9'	59° 46.3'	59° 45.1'	59° 45.2'
Longitude W.	139° 59.4'	139° 41.1'	139° 42.1'	139° 51.2'	139° 49.6'	139° 44.8'	139° 47.2'	139° 56.2'	139° 53.0'
Course, Magnetic[2]	056°	339°	152°	358°	085°	215°	203°	058°	089°
Depth Range in Fathoms	44 - 47	91 - 93	83 - 85	36 - 44	30 - 33	34 - 54	31 - 33	36 - 40	35 - 37
Type of Bottom	Gy. M.	Gy. M.	Gy. M. & G.	Gy. M.	Gy. M. & G.	Gy. M.	Gy. M.	Gy. M.	Gy. M.
Trawling Bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Tide	High slack	Ebb	Flood	Flood	Flood	Low slack	Flood	Flood	Flood
Time on Bottom in Minutes	30	30	30	30	30	30	30	30	30
Shrimp Catch in Pounds: (Whole Shrimp per Pound)[3]									
Pink	226 (79)	55 (115)	55 (111)	394 (82)	510 (80)	160 (99)	56 (95)	162 (89)	139 (92)
Side-stripe	Trace[4]	47 (35)	53 (31)	Trace	Trace	Trace	Trace	Trace	Trace
Coon-stripe	—	—	—	Trace	Trace	Trace	—	Trace	Trace
Spot	—	—	—	—	—	—	—	—	—
Total Shrimp Catch in Pounds	228	102	108	394	510	160	56	162	139
Total Shrimp Catch Hourly Basis	456	204	216	788	1020	320	112	324	278
Number of Scallops	—	—	—	1 (-)	5 (26)[5]	—	—	—	—
Remarks	—	—	—	—	—	—	—	—	—

1/Indicates type of gear; B. T. - beam trawl, O. T. - otter trawl, S. D. - scallop dredge.
2/Course at start of drag. Courses were often varied because of changing bottom conditions.
3/Figures in parentheses indicate number of whole shrimp per pound.
4/"Trace" - less than one pound of shrimp.
5/Bracketed figures indicate number of scallop meats per pound.

Symbols for Types of Bottom:
Blds. - boulders G. - gravel
bu. M. - blue mud S. - sand
gy. M. - gray mud St. - stones

Table 2 - Shrimp-Trap Catches in Yakutat Bay, Alaska, Spring 1953

Vicinity	Set Number	Date Out	Date In	Tide	Depth in Fathoms	Number of Traps	Total Hours Out	Bait	Shrimp Catch				Total Shrimp Catch in Pounds
									Spot		Coon-stripe		
									Pounds	No. of Whole Shrimp per Pound	Pounds	No. of Whole Shrimp per Pound	
South of Gregson Island to off NE tip of Khantaak Island	1	3/10/53	3/11/53	Flood	11 - 61	30	96	Frozen herring	20½	19	32½	34	53½
Off Gregson Island to off Eastern Point of Kriwoi Island	2	3/15/53	3/17/53	Flood	32 - 78	18	53	Frozen herring	29	17	40½	35	69½
Kriwoi Island to off Otmeloi Island	2A	3/15/53	3/17/53	Flood	16 - 96	12	54	Frozen herring	11½	19	15½	41	26½
Along shore of mainland east of Otmeloi Island	2B	3/15/53	3/17/53	Flood	55 - 90	6	54	Frozen herring	8½	14	12	40	20½
Mid-channel from north tip of Knight Island to off point of mainland south of Eleanor Cove	3	3/17/53	3/19/53	Ebb	17 - 82	36	47	Frozen herring	51½	13	45½	41	97½
Eleanor Cove to off Southwest tip of Knight Island and along mainland to opposite Krutoi Island	4	3/19/53	3/22/53	High slack	18 - 80	33	64	Frozen herring	34	18	58½	36	92½
Along mainland north of Knight Island, and off north tip of Knight Island	5	3/22/53	3/24/53	Flood	16 - 60	23	51	Frozen herring	18½	13	36½	35	55
Along mainland opposite Kriwoi Island to Redfield Cove	5A	3/22/53	3/24/53	Flood	38 - 88	12	51	Frozen herring	19½	14	19	34	38½
West side of Knight Island	6	3/25/53	3/30/53	Ebb	15 - 43	16	119	Frozen herring	14	16	9	42	23
Along mainland, opposite middle of Knight Island to Eleanor Cove	6A	3/25/53	3/30/53	Low slack	7 - 65	19	119	Frozen herring	40	13	3½	33	43½
Off Khantaak Island	7	3/30/53	4/2/53	Low slack	28 - 80	17	66	Frozen herring	1½	49	12½	36	14
Johnstone Passage	8	4/1/53	4/3/53	Flood	14 - 43	17	48	Frozen herring	3½	16	28½	36	32
Northwest of Knight Island	9	4/5/53	4/8/53	Ebb	26 - 72	26	74	Frozen herring	39	12	30½	35	69½

Table 3 - Crab-Pot Catches in Yakutat Bay, Alaska, Spring 1953

Vicinity	Set Number	Date Out	Date In	Tide	Depth in Fathoms	Number of Pots	Total Hours Out	Bait	Dungeness crab catch			Tanner crab catch
									Legal males	Small males	Females	
Kame Stream	1	3/10/53	3/12/53	Ebb	10 - 13	7	49	Frozen herring	----	----	----	79
Off north end of Dolgoi Island to off north end of Khantaak Island	2	3/10/53	3/11/53	Low slack	5 - 17	9	96	Frozen herring	1	1	----	29
Kame Stream, inside set No. 1.	3	3/12/53	3/23/53	Ebb	5	8	263	Frozen herring	1	5	1	4
North of north end of Khantaak Island	4	3/15/53	3/23/53	Ebb	7 - 20	17	190	Frozen herring	----	----	----	2
Kame Stream, outside set No. 1.	5	3/23/53	3/27/53	Ebb	17 - 20	15	102	Frozen herring	1	----	----	78
Redfield Cove	6	3/25/53	3/30/53	Low slack	20 - 40	5	119	Frozen herring	----	----	----	13
Continuation of set No. 5 in a northeast direction	7	3/27/53	4/5/53	Flood	20 - 21	16	211	Frozen herring	1	----	----	37

Progress on Projects, February 1954

FREEZING FISH AT SEA--NEW ENGLAND: The specifications for repair of the Service's research trawler Delaware were reviewed by the American Bureau of Shipping and by an independent qualified marine architect. Minor changes were made in the specifications. Invitations to bid on the projected repairs to the Delaware were issued for circularization contingent upon release of funds to carry out the work. Opening of bids is scheduled for March 4.

(Boston)

* * * * *

VITAMIN CONTENT AND NUTRITIVE VALUE OF FISHERY BYPRODUCTS: The proximate composition, and riboflavin and niacin content of 23 menhaden meals and 7 crab meals were completed. The results are:

Proximate Composition, and Riboflavin and Niacin Content of Menhaden and Crab Meals

Sample	Number of Samples	Value	Proximate Composition			Vitamin Content (moisture-and-oil free basis)	
			Moisture	Oil	Protein	Riboflavin	Niacin
			Percent	Percent	Percent	Micrograms Per Gram	Micrograms Per Gram
Menhaden Meal	23	Maximum	10.77	13.50	65.94	7.0	91
		Minimum	7.24	6.54	50.06	2.6	42
		Average	9.21	9.54	58.95	4.0	66
Crab (Blue) Meal	7	Maximum	10.65	3.80	34.06	13.5	40
		Minimum	7.16	2.31	27.19	0.9	36
		Average	8.77	2.86	30.33	8.7	38

(Seattle)

LINES COILED AUTOMATICALLY

An Icelandic invention has been patented which is operating on line fishing boats. The apparatus places the line, as it is pulled in by the winch, in coils into a half barrel.

--World Fisheries Abstracts, March-April 1953.

Additions to the U. S. Fleet of Fishing Vessels

A total of 52 vessels of 5 net tons and over received their first documents as fishing craft during November 1953--12 more than in November 1952. The west coast of Florida led with 10 vessels, followed by Texas and the east coast of Florida with 8 vessels each, according to the Bureau of the Customs.

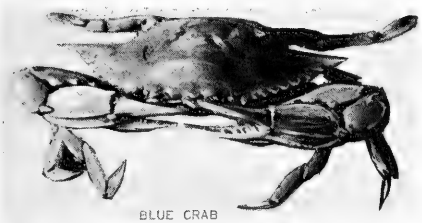
Vessels Obtaining Their First Documents as Fishing Craft, November 1953

Section	November		Eleven months ending with November		Total 1952
	1953	1952	1953	1952	
	Number	Number	Number	Number	Number
New England	1	4	19	30	30
Middle Atlantic	2	1	19	24	26
Chesapeake	3	4	76	63	65
South Atlantic	11	9	100	84	89
Gulf	24	14	236	144	161
Pacific	7	5	160	200	203
Great Lakes	1	1	7	13	13
Alaska	3	2	52	88	88
Hawaii	-	-	3	-	-
Total	52	40	672	646	675

NOTE: Vessels have been assigned to the various sections on the basis of their home port.

Atlantic Crab Meat Packers Plan Industry Sanitation Code

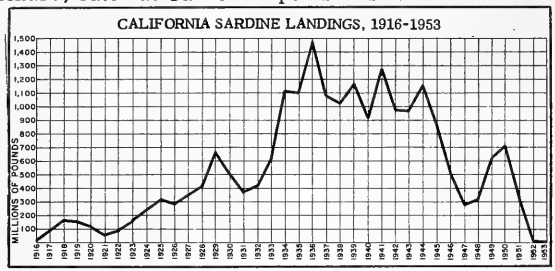
A voluntary industry sanitation code for blue-crab meat packers of the Atlantic Coast States was discussed at a meeting at National Fisheries Institute headquarters in Washington on January 13. A committee was formed which unanimously adopted a tentative code for National Fisheries Institute members, based on recommendations of the U. S. Fish and Wildlife Service following an intensive study of the problems. The rules and regulations of the State of Virginia, supplemented by those of other Atlantic States, served as a guide in formulating the code.


BLUE CRAB

This program is the outcome of an appeal made to the National Fisheries Institute by its New York City members and the Public Health Department of that City. Preliminary meetings were held in New York City; Jacksonville, Florida; and Hampton, Virginia. Other meetings were being scheduled covering the entire blue-crab production areas. Conferences have been held with the U. S. Fish and Wildlife Service, U. S. Food and Drug Administration, U. S. Public Health Service, and with the proper agencies of a number of states and cities. Plans involve a long-term program and offer hope for a branch of the industry that has unlimited potentialities.

California

LOSS OF SARDINE FISHERY MAY BECOME PERMANENT: Where a few short years ago the daily sardine (pilchard) catch at California ports was estimated in the thousands of tons, now days are counted between catches. Thousands have lost their livelihood with the vanishing California sardine which is now even too scarce to provide bait for anglers, claims the Chief of the Marine Fisheries Branch of the California Department of Fish and Game in an article published in the January 1954 Outdoor California. The major part of the article follows:



What has caused this catastrophe? Could it have been prevented? Will the sardines return, and can we help them? The answers to these questions are complex but we have them. The causes of scarcity can be summarized as too much fishing and not enough reproduction.

The sardine industry sprang up during World War I and reached a level during the succeeding decade or so which produced reasonable quantities of food and provided a reasonable living for fishermen and plant operators. Then with the development of reduction plants for meal and oil, catches skyrocketed. New and bigger plants were built, many new large boats joined the fleet. Everyone made money hand over fist as the ever-growing harvest of silver sardines flowed into the plants to be transformed into dollars.

As the industry expanded into the Northwest, annual landings reached 750,000 tons, or 1½ billion pounds. To the industry, the fish seemed inexhaustible, and new plants and boats were built despite the solemn warnings of scientists that the house of cards would soon come tumbling down.

No fish could withstand this sort of exploitation for long. A fleet of 300 vessels, each able to take from 100 to 200 tons a day, was capable of decimating any kind of fish.

Gradually the signs of depletion were evident. The older and larger fish were caught off and the fishermen had to take the younger ones. Each boat caught less fish for its night of fishing, but greater numbers of boats sustained the total catch for awhile. And rising prices maintained fishermen's incomes. Scarcity was masked.

At the same time that the nets were taking their toll, nature conspired to hasten the end by failing to provide good oceanic conditions for spawning and the survival of young fish. Sardine spawning success has always fluctuated widely and in some years few young fish were produced. However, there were always enough older fish to fill the boats, and occasional poor spawnings went unnoticed by the industry. Then in the last several seasons came a series of years when few baby sardines survived. The nonproduction of young fish, coupled with the killing off of the oldest fish, resulted in a severe curtailment of abundance.

Now scarcity has proceeded so far that even if oceanic conditions should become favorable, we fear that insufficient spawning sardines remain to take advantage of them to produce a good hatch.

The disappearance of the sardine was not a sudden thing--it has been progressive. The danger signs were there years ago but all warnings went unheeded. It is no pleasure to say, "We told you so." The sad part of this story of a failing industry is that it could have been prevented.

When the first signs of failure appeared, over 15 years ago, we warned the industry. Total catches were still rising and fortunes were still being made. So, who cared that the average size of the fish was diminishing, that each fisherman's catch per night's fishing was declining? The scoffers had their day and built new reduction plants and canneries.

The fishery off Canada failed first. Only the largest sized fish migrate north and when the big fish were caught, they couldn't migrate. Then Oregon and Washington lost their industry. But the fishermen thought it was a temporary shortage due to a change in the currents.

Next came the collapse of the fabulously rich San Francisco fishery. After a few flurries, Monterey faded into history. Fair spawnings in 1947 and 1948 postponed the end and prolonged the death throes.

By 1950 the Central California fishermen and plant operators in their desperation called for help. At last they realized that this was no temporary shortage. The department's recommendations for a management program finally fell on ears not entirely deaf.

But still the sardines appeared to thrive in Southern California waters. Being closest to the offshore spawning areas and where the adolescent fish have always occurred, the southern grounds continued to produce. When the 1947 and 1948 fish reached catchable size--or somewhat less--they were pounced upon by the entire West Coast fleet which had concentrated in southern waters. Few fish survived to migrate north. Few fish survived to spawn. Few fish survived.

The optimistic fishermen heralded the upsurge as the start of a returning abundance. Now, they

thought, the fish have come back like we always said. This has been just the low point on a natural cycle and here we go again on that silver rocket to the moon.

But it was not to be. After two fair years, the next season was a failure. And since then gloom has really settled on the waterfronts. In the last two years there have not been enough sardines to supply all the bait needs of the sportsmen, let alone to fill the empty cans in the warehouses.

Our research people, by measuring the fish and measuring the catches, checking the migrations and surveying the spawning beds, and by performing intricate calculations, had determined that the supply of fish could support a fishery only half as great as the landings of the booming 30's and early 40's. Through the Department of Fish and Game they stated and reiterated that unrestricted fishing would result only in self-destruction of a great industry. They pointed out that restrictions on nets, closed areas, processing limitations and closed seasons, even had they been more severe, would still be nothing but panaceas giving lip service to conservation.

Nothing short of a direct curtailment of fishing--which would result in less production--could preserve the fishery. The calculations indicated that although the supply could not withstand a 700,000-ton catch indefinitely, it could maintain half that amount year after year. The recommendations aroused laughter but no interest.

As catches plummeted, the researcher calculated that the reduced sardine population could no longer maintain a 300,000-ton production. They recommended a seasonal bag limit of what then sounded like a ridiculously low figure. Who could guess that a year's total catch would soon be a mere 5,000 tons, including bait?

While fishing continued recklessly, each successive calculation showed a lower safe annual limit that should be set.

It can be stated without fear of contradiction that had landings been limited to 300,000 tons a year in the early 1940's, there would be no sardine crisis now. Had a limit of 200,000 tons a year been established as late as 1947, there would not be 75 idle processing plants rusting away nor over 100 purse seine boats for sale at any price. But no one could believe that the ugly word "overfishing" was the cause and no one wanted any regulation or restriction of their "right" to fish.

Committees were appointed and deliberated. Some saw merit in our proposals for a managed fishery. Some didn't. All quarreled over details while agreeing that conservation was a good idea.

Realizing that something was causing the sardines to make themselves unavailable, even if it wasn't fishing, level-headed leaders in the industry asked for additional research which they hoped would throw light on the disappearance. They asked the Legislature for special added taxes on themselves to finance research, and as a result the Marine Research Committee was formed. They requested larger appropriations for the University of California for research. Seagoing surveys are expensive. The agencies, financed in part by this new tax, and using also their own funds, have banded together under the Marine Research Committee. They are the Department of Fish and Game, the University of California, Stanford University, U. S. Fish and Wildlife Service, and the California Academy of Sciences. Their program is called the California Cooperative Oceanic Fisheries Investigation.

Important results have been produced by this fishery research program, but it will be years before the final story is told. In the meantime, the fish have gone from all our coast and only in Mexico can they be found in anything approaching their former numbers.

Something drastic must be done, and soon. It may be too late but we must try. An advisory committee established late in 1951 and composed of the leaders of the industry, sportsmen's groups, Legislature, and the Department labored long and earnestly to develop a conservation plan. In spite of everything, a workable program was laid before the Legislature in 1953. Bickering and disagreement over details caused its defeat. Fishing continues unrestricted and every sardine that shows a fin is captured forthwith.

Now, only complete cessation of fishing for a few years, followed by rigid control of fishing intensity for many years can hope to revive the sardine fishery. The few remaining fish must be given a chance to reproduce.

In recognition of the plight of the fishery, the Fish and Game Commission adopted a resolution last November that sums the situation accurately. It reads:

> "WHEREAS, It appears to the Fish and Game Commission that the sardine industry of California is in a state of collapse because of a continuing scarcity of fish to the point where there is insufficient supply for either processing or bait; and
>
> "WHEREAS, There are no indications of a return to abundance in the foreseeable future; and
>
> "WHEREAS, Present statutory controls are inadequate to insure a recovery of the fishery, and only strict regulation of catches adjusted to meet changes in the amount of the supply offers any hope for the future of this important industry; now, therefore, be it
>
> RESOLVED, That the Fish and Game Commission respectfully requests the Governor of the State of California to call an extraordinary session of the Legislature to be concurrent with the 1954 Regular Budget Session to consider enactment of a statute conferring upon the Fish and Game Commission the authority to regulate the taking of sardines for all purposes, consistent with the principle of maximum sustained yield."

So, once again we shall try to save an industry with the support of those in the industry who wish to remain in business and the sport fishermen who see the sardine as a feed fish for the game species and as bait.

* * * * *

SARDINE STUDY PROGRESS REPORT: A progress report on the studies of the California sardine (pilchard), anchovy, Pacific mackerel, and jack mackerel, has been issued by the research agencies participating in the California Cooperative Oceanic Fisheries Investigations. The report covers the fiscal year July 1, 1952, to June 30, 1953. The work by the agencies during the period has been supported by a special tax on anchovy, jack mackerel, and Pacific mackerel landings, as well as the special tax on sardines and appropriations from the California State Legislature. This apparent broadening of the scope of the sardine program (symbolized by the change in name from the California Cooperative Sardine Research Program) formalizes what has been recognized by scientists and industry from the beginning of the program, that despite the critical state of the sardine fishery there is no specific "sardine problem;" the sardine problem is an integral part of the broader question of California's marine resources.

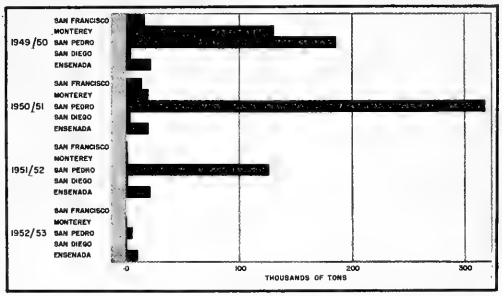


Fig. 1 - The total California sardine catch for the 1952/53 season was 5,420 tons. Only 70 tons of the total came from ports north of Point Conception. The Baja California port of Ensenada accounted for more tonnage than all California ports even though the catch there (9,630 tons) amounted to less than half that for the previous year. The Ensenada totals are for the calendar year in which the California season starts (1949/50 = 1949, etc.). The tonnage for Ensenada were obtained through the courtesy of the processing plant operators.

The report summarizes the situation as of July 1, 1953, as follows:

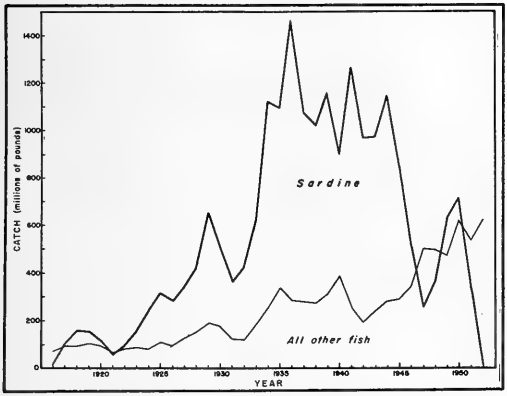


Fig. 2 - From 1922 to 1946, the catch of Pacific sardines exceeded in weight that of all other California fisheries combined, particularly so during the 1930's.

1. The bulk of the sardine population today is concentrated in the waters off Baja California, where it is largely unavailable to sardine fishermen of the United States.

2. There are fewer sardines in California waters than ever before.

3. There is little reason to hope that sardine fishing in the next two years will reach the level attained in the years of prosperity.

4. The most numerous year class present is that spawned in 1952, and evidence points to its being smaller than the 1948 year class.

5. Anchovy and jack mackerel populations appear to be satisfactorily abundant. Pacific mackerel catches, on the other hand, point toward a low abundance throughout California waters.

6. The research studies on which these conclusions are based are outlined in this report. We are able to give some clues as to the causes of the catastrophic decline in sardine landings, but are not able to isolate any single primary reason. As the studies progress, it begins to seem more and more probable that it is a combination of several factors that has brought the sardine catch to its low level and until we can identify and measure each of the most important factors, no complete explanation can be given for this or a similar crisis which may overtake any of California's marine fisheries.

The cooperating agencies in this program include: California Academy of Sciences; California Department of Fish and Game; Stanford University, Hopkins Marine Station; U. S. Fish and Wildlife Service, South Pacific Fishery Investigations; and University of California, Scripps Institution of Oceanography.

A summary of the findings regarding the environment of the sardine, the potential fishery, and the status of the adult sardine population as of July 1, 1953, follows:

The Environment of the Sardine:

1. During 1952, 1,252 hydrographic stations were occupied by vessels engaged in sardine research studies. The most intense coverage was off Southern California and Baja California, where we have found almost all spawning to occur.

2. Several special cruises were made to study sardines in the nearshore areas.

3. The year 1949 ended with a fairly good fishing season; the year 1952 ended with the worst season in history. We have found that the California Current meandered more in 1949 than in 1952, causing the appearance of the Countercurrent near shore.

4. The Countercurrent brought warmer waters along the immediate coast during the 1949 fishing season than during 1952. We do not know that this fact bears on the spectacular failure of the fishery in 1952; it is a possibility that we intend to investigate further.

5. In four years of survey cruises, we have tremendously enlarged our knowledge of upwelling, the physical factor that results in enriched water and consequent plant and animal growth. We have found upwelling to occur at more places and times than had been known before.

6. Recently we have developed a theory that allows us to give a numerical value to upwelling, expressing the amount in distance upward traveled in a unit of time. This potentially very useful method checks well with our other upwelling studies, and may point a way for relating upwelling more closely to other quantities measured on the program, such as food production, amount of spawning, and the catch.

7. Using past studies as our basis for comparison, we have not been able to demonstrate that the plant population of the ocean has changed significantly during the past few years. This negative result by no means closed the door on further investigation of the productivity problem; it is useful in that it indicates our method may be faulty and suggests better ways to get the information.

8. Studies of adult sardines have shown them to be primarily filter-feeders, straining out any organisms present in the surrounding water.

9. Larval sardines are unable to strain food; they seize it with their mouths. Larval sardines show a definite preference for copepods, which are minute shrimplike marine creatures.

In sum,

(1) we have found interesting and possibly significant differences in current patterns between 1949 and 1952, years strikingly different so far as the catch was concerned;

(2) we have developed a potentially very useful tool for the quantitative measurement of upwelling;

(3) we are learning enough about sardine feeding habits and the patterns of plankton distribution in the sea to be able to plan studies that if continued should eventually tell us finally if the "sardine problem" is basically a "food problem."

The Potential Fishery:

1. Since 1949, sardine spawning has progressively lessened both in amount and extent off California.

2. There has been no noticeable decline in the abundance of either eggs or larvae off central Baja California.

3. Young-fish surveys indicate that no great numbers of sardines have survived from spawnings since 1948.

4. By 1952 all age groups of sardines were reduced to a low level except the six-month-old 1952 year class; these fish are too young to contribute a large tonnage to the California fishery in the 1953-54 season.

The Status of the Adult Sardine Population:

1. In the past four years we have witnessed a decrease in numbers of sardines of all sizes on the California fishing grounds, and a maintenance, but no marked increase, in the numbers in Baja California waters south of Ensenada.

2. By 1952-53, too few sardines of any age group remained on the California grounds to support a fishery.

3. A contraction of the area in which the sardines are caught has been paralleled by a series of poor year classes.

4. Between 1951 and 1952, estimated mortality rates increased greatly over the preceding year's estimate.

5. The success or failure of the fishery in the immediate future will be largely determined by the number of sardines that may move from the Baja California waters onto the fishing grounds.

6. There is evidence for a vastly increased availability in the 1949-50 season, with a declining availability since then.

7. Estimates of population size have yielded information that indicates a variable net northward movement from Baja California to Southern California of sardines in the fall, and this variability accounted in part for the failure of the 1952-53 season.

8. A new technique has been introduced for the study of the problem of subgroups.

A summary of the findings on the status of what the report terms "substitute sardine populations" follows:

The Status of the Substitute Fish Populations:

1. Landings of anchovies, especially in central California, would indicate that this population is satisfactorily abundant, although the appearance of the anchovies on the fishing grounds is somewhat sporadic and seasonal. The same seems to be true of the jack mackerel population in Southern California. Pacific mackerel catches, on the other hand, indicate a low abundance of these fish throughout all California waters.

2. Young-fish surveys, designed primarily to sample sardines, also sample anchovies, jack and Pacific mackerel. With the exception of jack mackerel these surveys give an estimate of the relative abundance of the four species and their distribution along the coast from Northern California to southern Baja California. Jack mackerel schools occur farther offshore than do the other species and the surveys only reflect the relative abundance of these fish in the inshore waters. This was evident in the 1952-53 season when jack mackerel were scarce on the Southern California fishing grounds but the fishermen were able to bring in good tonnages from the offshore banks. This offshore fishery, however, did not yield any appreciable tonnages of sardine or Pacific mackerel.

3. The lowest abundance of all species occurred off central California. The numbers of Pacific and jack mackerel declined steadily in the Southern California waters throughout the three years of the surveys but showed a slight increase off Baja California. Anchovies were more abundant off Southern California and Baja California than off central California. Off California their greatest abundance occurred in 1950. They were slightly more abundant in 1952 than in 1951.

4. From 1950 to 1952 the decline of sardines on California grounds was steady and rapid. Pacific mackerel, at a lower level at the beginning, disappeared almost completely by 1952. Anchovy and jack mackerel also declined but at a slower rate. Throughout the three years their abundance exceeded that of sardines.

5. In Baja California waters, jack mackerel decreased slightly and anchovies more markedly. Pacific mackerel did not decline and showed a minor increase in 1952. They were the least abundant of all species, however, on the Baja California grounds as well as off California.

* * * * *

YELLOWFIN TUNA GROW RAPIDLY: The first concrete information on the growth rate of tuna was revealed when a tagged yellowfin tuna was landed at San Diego, California, on January 19. The fish was tagged by marine biologists of the California Department of Fish and Game off the Gulf of Guayaquil, Peru, in 1952; it had grown more than one inch a month and gained more than two pounds a month in the 372 days elapsing between tagging and capture.

Cans--Shipments for Fishery Products, January-November 1953

Total shipments of metal cans for fish and sea food during January-November 1953 amounted to 99,973 short tons of steel (based on the amount of steel consumed in the manufacture of cans). Comparative data for 1952 are not available.

NOTE: Statistics cover all commercial and captive plants known to be producing metal cans. Reported in base boxes of steel consumed in the manufacture of cans, the data for fishery products are converted to tons of steel by using the factor: 23.0 base boxes of steel equal one short ton of steel.

Fishery Products Marketing Prospects for 1954 and Review for 1953

PROSPECTS FOR 1954: Current indications for the first half of 1954 are that United States civilian consumption of fishery products probably will not equal the per-capita rate of a year earlier. Supplies of the frozen and the canned commodities will remain smaller than a year earlier at least until after mid-spring, when the 1954 commercial fishing season will be well under way. Except for a few species, stocks at the end of 1953, which represent the bulk of the total supplies available for distribution until well into the spring season, were much smaller than a year earlier, and imports of the major fishery products are likely to be about the same as in the first half of 1953. The smaller supplies will likely be reflected in retail prices of fishery products during the first half of 1954 which at least will be equal to those of a year earlier.

REVIEW OF 1953: United States civilian consumption of fishery products per person in 1953 was not quite equal to that of a year earlier, with small declines occurring both in the canned and the fresh and frozen commodities. Supplies of edible fishery products were somewhat smaller than in 1952, largely as a result of the reduced catch. Judging from wholesale prices in the principal primary markets, retail prices of fish and shellfish generally averaged close to those of 1952.

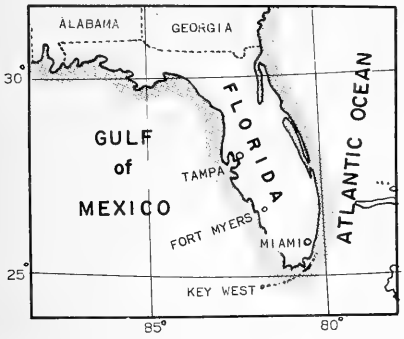
The commercial catch of edible fishery products was about 7 percent smaller in 1953 than a year earlier. This decline resulted from a combination of factors, among the most important of which were poor runs of fish in some of the major commercial fishing areas and unfavorable weather. A large part of the catch decline was reflected in smaller packs of the important canned fish than in 1952--i.e., salmon, Maine sardines, California sardines (pilchards), and mackerel. The decline in total canned fish output in 1953 was to some extent offset by substantially larger imports of canned salmon, sardines, and tuna.

The total volume of commercial fishery products which moved into domestic distribution during 1953 was close to that of 1952. The substantial reduction during the year in stocks of frozen fishery products and in packers' stocks of canned fish largely offset the effects of the decline in production. Imports of important fishery products were a little larger than in 1952, with the decline in receipts of the major fresh and frozen products more than offset by a substantial increase in imports of canned fish. Exports of canned fish, which comprise the bulk of the total edible fishery products which we ship abroad, were substantially smaller than last year as a result of short supplies of canned California sardines (pilchards).

This analysis appeared in a report prepared by the Bureau of Agricultural Economics, U. S. Department of Agriculture, in cooperation with the U. S. Fish and Wildlife Service, and published in the former agency's February 10, 1954, release of The National Food Situation (NFS-67).

Florida

FLORIDA RED TIDE STUDY TO CONTINUE: A determined effort to find an effective control of the Florida red tide is receiving the attention of Secretary of the Interior Douglas McKay. On a recent trip to Florida Secretary McKay met with representatives of the affected areas and discussed the problem. Since returning to Washington he has discussed the matter with Assistant Secretary Orme Lewis, who was with him on his recent visit to Florida, and with Fish and Wildlife Service Director John Farley.



Lewis reported that the Service is presently conducting research at Galveston, Texas, and Ft. Myers, Florida, with an annual appropriation of $35,000, and has reported that due to current conditions in the area affected it appears that further research, through the use of a scientifically equipped boat, will be of much benefit. The approximate cost of the additional work will be $20,000 annually, in addition to the cost of purchasing and equipping the boat.

Secretary McKay stated that the Department is determining the possibility of allotting funds from current appropriations to finance the cost of the additional research work. The Department is also studying the possibility of making a request for a supplemental appropriation in the event the requirements for such an appropriation can be met.

Great Lakes Fishery Investigations

LAMPREY CONTROL BY LARVICIDE: One phase of the research program undertaken by the U. S. Fish and Wildlife Service in the near future will be concerned with discovering some means of destroying sea lampreys that have already reached the larval stage in the streams. The imperative need for an effective larvicide was emphasized in the summer of 1953, when more than 1,600 spawning-run lampreys were captured in the 10 control structures which were operated during part of the spawning season. The presence of spawning-run lampreys in as great number as this indicates that streams of Lake Superior may even now be well seeded with larval lampreys. As these ammocoetes spend 4 to 5 years in the stream bottom, it is quite possible that during the next few years the number of parasitic-phase lampreys occurring in Lake Superior--the last of the Great Lakes to have a good-sized stock of lake trout--may be sufficient to bring disaster to the lake trout fishery even though any further spawning of the sea lampreys is prevented.

Maine

SARDINE PACK, 1953: The pack of Maine sardines in oil and mustard sauce during the 1953 season totaled 2,165,000 actual cases; 1,845,000 standard cases (100 $\frac{1}{4}$-oil cans with $3\frac{1}{4}$ oz. net per can) and 320,000 actual cases of 5-, 8-, 15-, and 16-ounce cans in oil, mustard sauce, and various packing mediums, according to figures released by the Executive Secretary of the Maine Sardine Industry. This was the

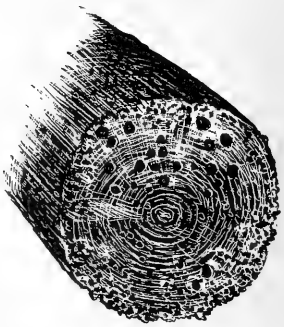
second shortest pack since 1938, with the 1951 pack of 1,600,000 cases still the lowest on record for the 16-year period.

In 1952 Maine's canning plants packed the equivalent of 3,458,000 standard cases of sardines, while in 1950 they broke an all-time record by turning out 3,844,000 cases. The average pack for the past ten years has been about 3,000,000 cases.

The Executive Secretary of the Maine Sardine Industry stated that the industry's nationwide market was well supplied at present despite the shortage. However, inventories were dwindling fast and a complete sell-out was indicated before the new packing season opened in April.

Maryland

SHIPWORM STUDY: The study of marine borers in the Chesapeake Bay conducted at the Chesapeake Biological Laboratory is beginning to show fruitful results, reports the December 1953 Maryland Tidewater News, a Department of Research and Education publication. Collection of experimental panels has been in progress since May 1950 and most of the panels have been examined. These have been collected from 18 sampling stations throughout the Bay and on the Atlantic coast of Maryland. Two genera of shipworms have been encountered in the Bay, namely Bankia and Teredo. Bankia has been found in waters of lower salt content while Teredo apparently is limited to waters of greater salinity.



Large tubes made by Bankia and small tubes made by Teredo on piling.

Salinity appears to be the limiting factor with the genus Bankia. No specimens of Bankia have been collected from areas in which the year-round average salinity drops below 9.4 parts per thousand. This probably means that an average year-round salinity of at least 9 parts per thousand is necessary for survival of this shipworm population, but does not necessarily indicate that the organisms cannot tolerate lower salinities over short periods of time. Stations on the upper Patapsco River showed no infestation, a situation that may be due to pollution of waters. The year-round average salinity, from the data collected by the Laboratory, is between 7.7 and 7.9 parts per thousand (at the surface) in the Patapsco River. At Gibson Island, where probably no pollution occurs, no shipworms have been found in the course of this study. The average year-round salinity at this point is 7.5 parts per thousand.

A small strike of Bankia occurred at Annapolis during July and early August 1953, and a similar strike occurred at Kent Narrows. The average year-round salinity at these points is 9.4 and 9.7 parts per thousand, respectively. The data seems to show that the northernmost limit of Bankia in the Chesapeake Bay is near 39° N. latitude. Data on Cambridge harbor is incomplete, but a small strike was recorded there at the end of the summer of 1951. One of the worst areas encountered in the study thus far was at Solomons Island near the mouth of the Patuxent River. Bankia causes considerable damage in that area during the summer months at which time the strikes are heavy. For example, in one 2x4x6 inch panel submerged from May to the beginning of August, 22 shipworms were found ranging from 0.6 to 12.0 inches in length.

Crisfield harbor showed a light strike during the months of July and August 1951. The further distribution southward of the genus Bankia is not known at this time although none has appeared in panels from Gloucester Point in the lower York River.

At Gloucester, however, panels left submerged for the summer, were completely riddled by Teredo. This seems to be correlated with higher salinities. Panels on the Atlantic Coast at Ocean City harbor and in the Chincoteague Bay have shown only Teredo. The intensity of strike is very heavy in this area.

The type of damage of the two genera differs somewhat. Bankia, by the lateral motion of the valves, is able to drill burrows of larger diameter, and their maximum length, on the average, was found to be greater. The burrows of Teredo are usually smaller in diameter and not nearly as long but the "strike" is usually much heavier. In many respects Bankia is more dangerous since much damage can be done without notice by casual observation, and a strike of fewer organisms is able to inflict considerable damage.

The strike of shipworms in the Chesapeake Bay takes place usually during July when the surface water temperature reaches between 75° F. and 80° F. The immature stages are estimated to require from four to five weeks for development, and it is therefore implied that spawning begins in late May or early June. The organism remains in wooden structures during the remainder of its life.

NOTE: See Commercial Fisheries Review, July 1951, pp. 17-18.

Pacific Salmon Investigations

AGE READINGS OF SALMON OTOLITHS: Age readings of otoliths (ear stones) definitely confirm the finding by Service biologists that 3-year old fish predominated in the large run of Okanogan River blueback (red or sockeye) salmon in 1953, although blueback salmon of this river are normally 4-year olds.

Otolith age readings from 91 bluebacks sampled in October 1953 showed 93.4 percent were 3-year olds and 6.6 percent 4-year olds. This finding compares well with age readings from scale samples made in August 1953 in which 98.4 percent were 3-year old fish, 1.1 percent 4-year fish, and 0.5 percent 5-year fish. Reasons for predominance of 3-year fish in the run are unknown, reports the Service's Branch of Fishery Biology.

Shrimp Canners Propose Revised Standards for Canned Shrimp Sizes

In order to discuss, amend, and adopt tentative industry standards for sizes and size designations of canned shrimp, members of the National Shrimp Canners and Packers Association met on January 6 in New Orleans, La. The resolutions unanimously adopted at the meeting covered the following:

An industry standard for grade counts on canned shrimp.

Tentative counts on canned shrimp as follows:

1. Colossal - Less than 2-1/2 shrimp per ounce.
2. Jumbo - Less than 3-1/2 shrimp per ounce.
3. Large - 3-1/2 to 5 shrimp per ounce.
4. Medium - More than 5 but not more than 9 shrimp per ounce.
5. Small - More than 9 but not more than 17 shrimp per ounce.
6. Tiny - More than 17 shrimp per ounce.

Term "extra large" deleted from the labels and the word "jumbo" substituted.

Recommendation for all grade sizes to be shown on labels.

A tolerance for cleaned or deveined shrimp of +8 percent of each count of regular pack in order to offset deveining loss.

Any shrimp pack consisting of less than 50 percent broken by weight be classified as "whole and broken," or with the appropriate size designation plus the word "broken," or as "broken;" and that more than 50 percent by weight be classified as "broken."

Present industry practice of allowing a tolerance of not more than 5 percent of broken shrimp in any grade size be continued.

Grade sizes be based on cut-out weight per ounce after processing.

August 1, 1954, be set as the date for adoption of these standards.

United States and Alaska Commercial Fisheries Catch Increased in 1953

CATCH: The 1953 catch of commercial fish and shellfish in the United States and Alaska totaled about 4.4 billion pounds as compared with 4.3 billion pounds in 1952, according to a preliminary report issued by the Service's Branch of Commercial Fisheries. The catch includes fish and shellfish for human consumption and for production into byproducts.

The increase was due to a spectacular gain in the catch of menhaden, one of the least known but most important species of commercial fish. A substantial supply of menhaden on the Atlantic Coast and a heavy demand for menhaden meal for poultry and swine feeding were responsible for the increased landings.

LEADING FISHING PORTS: The outstanding fishing port in 1953 in volume of landings was Lewes, Del., where 360 million pounds of menhaden (almost entirely utilized for producing fish meal, oil, and solubles) were landed. San Pedro, Calif., which held first place for many years, was second with landings of 328,000,000 pounds, principally tuna, Pacific and jack mackerel, and sardines.

Other leading ports for which poundage figures are available were: Gloucester, Mass., with 186,000,000 pounds, mainly of ocean perch, whiting, haddock, and pollock; Boston, Mass., with 152,000,000 pounds, principally of haddock, cod, pollock, whiting, ocean perch, and flounders; Reedville, Va., with 152,000,000 pounds of menhaden; and San Diego, Calif., with 128,000,000 pounds, chiefly of tuna.

The outstanding ports with respect to value of the catch were San Pedro with landings worth $32 million and San Diego with a catch valued at $20.3 million. The value of the catch at these two ports far outweighed other domestic ports.

PRODUCTION OF FISHERY PRODUCTS AND BYPRODUCTS: Ups and downs marked the output of fishery products and byproducts in the United States and Alaska last year. Declines occurred in the production of canned salmon, canned Maine sardines, canned Pacific and jack mackerel, and frozen products, while there were gains in the output of canned tuna, canned shrimp, canned anchovies, fish meal, and fish oils.

The total pack of canned fishery products for human consumption was about 10 percent less than the 647 million pounds packed in 1952. The output of canned salmon came to about 3.9 million cases as against 4.5 million cases in 1952. The Maine sardine pack amounted to approximately 2 million cases as compared with more than 3.5 million cases in the previous year. Production of canned Pacific and jack mackerel dropped to about 593 thousand cases from the 1952 pack of 1.5 million cases. The tuna pack amounted to about 9.5 million cases, or approximately 400 thousand cases more than in the previous year, for an all-time high. Production of canned shrimp showed an increase of about 10 percent over the 1952 pack of 818 thousand cases. The output of canned anchovies increased sharply, but this will have little effect on the over-all supply of canned fish for domestic consumption since most of this pack is exported.

Production of increasingly important fish meal came to about 241 thousand tons as compared with 221 thousand tons in 1952. The 1953 production is believed to represent an all-time record.

The yield of fish oils amounted to about 20.5 million gallons, or more than 4 million gallons above the previous year's yield.

The output of frozen fishery products totaled about 275 million pounds as compared with 313 million pounds in 1952.

The principal reasons given for production drops were failure of fish to appear in normal numbers and a lack of demand for certain products.

As a result of the declines in the production of processed edible fishery products, supplies of a number of items will be below normal in 1954.

U. S. Foreign Trade in Edible Fishery Products, October 1953

United States imports of fresh, frozen, and processed edible fish and shellfish during October 1953 totaled 64 million pounds (valued at $16.7 million), according to the October United States Foreign Trade, a Department of Commerce publication (see table). This is an increase of 7 percent in quantity and 4 percent in value as compared with September imports of 60 million pounds (valued at $16 million). However, October 1953 imports were down 22 percent in quantity and 13 percent in value from a year earlier.

United States Foreign Trade in Edible Fishery Products, October 1953 With Comparisons

	October 1953		October 1952		Year 1952	
	Quantity	Value	Quantity	Value	Quantity	Value
	1,000 Lbs.	Million $	1,000 Lbs.	Million $	1,000 Lbs.	Million $
Imports:						
Fish & shellfish: Fresh, frozen & processed[1/]	63,719	16.7	82,075	19.2	705,118	183.1
Exports:						
Fish & shellfish: Processed[1/] only (excluding fresh and frozen)	3,197	0.8	7,130	1.7	56,604	13.5

1/Includes pastes, sauces, clam chowder and juice, and other specialties.

United States exports of processed edible fish and shellfish (excluding fresh and frozen) in October 1953 amounted to over 3 million pounds (valued at $0.8 million), lower by 43 percent in quantity and 33 percent in value from September exports of almost 6 million pounds (valued at $1.2 million). Compared with October 1952, exports were down 55 percent in quantity and 53 percent in value.

Wisconsin Great Lakes Commercial Fishing Regulations

The Wisconsin Conservation Commission recently adopted Order No. F-405 (Revised 8) relating to open and closed season and other regulations for commercial fishing in Great Lakes' waters of Wisconsin, a November 27 bulletin from the Wisconsin Conservation Department reports. The changes from the previous order were only few and they were as follows:

1. The closed season on suckers, walleyes, and northern pike was extended to May 31 instead of May 19 (season will now be April 10 to May 31).

2. The so-called "Sebago Salmon" is recognized as the brown trout and taken off the commercial fishing list.

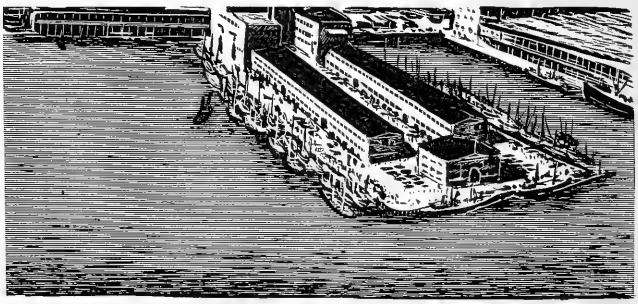
3. Permits will be issued for $2\frac{1}{4}$-inch stretched mesh herring nets in Green Bay in the spring of 1954.

4. Drop nets will be permitted for fishing through (under) the ice in Southern Green Bay in less than 50 feet of water, and lifted in a heated enclosure.

The Superintendent of Fish Management explained that public hearings on the proposed order had been held at several places on the Great Lakes during August 1953, and that the State Commercial Fishery Advisory Committee favored the proposed changes. The item which received the most comment by commissioners was the removal of the "Sebago Salmon" from the commercial fishing list. The Superintendent stated that there was not much evidence that many of these lake-run brown trout were taken by anglers, but in recent years the commercial harvest ranged from 4,000 to 9,000 pounds annually. This is not of importance to the commercial fishing industry as a whole, but is significant for the few commercial fishermen who do fish for them. He also stated that over the years commercial fishermen have been deprived of certain species and areas in favor of anglers and that as a group the commercial fishermen have been good sports about it.

Wholesale Prices, January 1954

January fresh fish and shellfish landings continued seasonally light, the demand for most fishery products was good, and wholesale prices for these products were higher than in December. Prices were also higher than in January 1953. The over-all edible fish and shellfish (fresh, frozen, and canned) wholesale index for January 1954 was 113.9 percent of the 1947-49 average (see table)--4.1 percent higher than in December 1953 and 3.1 percent above January 1953, the Bureau of Labor Statistics of the Department of Labor reports.



Boston Fish Pier

The largest increase was in the drawn, dressed, or whole finfish subgroup index--8.7 percent higher than December and 11.8 percent above January 1953. January prices for all items in this subgroup were up from December, except salmon at New York and lake trout at Chicago which sold at lower prices. Compared to a year earlier, prices for ex-vessel haddock at Boston and whitefish and yellow pike at New York were up considerably; there was a moderate price increase for whitefish at Chicago; halibut and salmon prices were down; and lake trout prices at Chicago remained stable.

In the fresh processed fish and shellfish subgroup, January prices were up slightly (1.2 percent) due to increases in haddock fillets (2.5 percent) and oysters (2.4 percent). Shrimp prices were down slightly (0.2 percent) as production continued good. Compared to January 1953, haddock fillets and oyster prices were up, while shrimp prices were down.

There were only minor changes from December to January in frozen processed fish and shellfish prices--flounder fillets were unchanged, fillets of haddock and ocean perch rose slightly, and shrimp prices were down a little. Although haddock fillet prices this January were up 13.2 percent from a year earlier, prices for all other items in this subgroup were below January 1953.

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, January 1954 and Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ ($)		Indexes (1947-49=100)			
			Jan. 1954	Dec. 1953	Jan. 1954	Dec. 1953	Nov. 1953	Jan. 1953
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					113.9	109.4	106.1	110.5
Fresh & Frozen Fishery Products:					125.8	2/119.4	114.0	119.3
Drawn, Dressed, or Whole Finfish:					131.4	120.8	112.8	117.5
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.17	.15	170.1	148.2	126.4	131.7
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.31	.30	95.9	93.4	91.8	103.2
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.49	.50	109.0	111.2	115.7	110.7
Whitefish, L. Superior, drawn (drsd.), fresh	Chicago	lb.	.61	.37	150.0	90.5	85.5	142.5
Whitefish, L. Erie pound or gill net,rnd.,fresh	New York	lb.	.65	.63	131.5	126.4	101.1	99.1
Lake trout, domestic, No. 1, drawn(drsd.)fresh	Chicago	lb.	.61	.61	124.0	125.0	107.6	124.0
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.50	.40	117.2	93.8	102.0	96.1
Processed, Fresh (Fish and Shellfish):					123.4	121.9	119.3	125.2
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.41	.40	139.5	136.1	129.3	131.0
Shrimp, lge. (26-30 count), headless, fresh or frozen	New York	lb.	.72	.73	114.2	114.4	107.9	122.5
Oysters, shucked, standards	Norfolk	gal.	5.25	5.13	129.9	126.8	129.9	126.8
Processed, Frozen (Fish & Shellfish):					109.3	108.7	107.0	113.6
Fillets: Flounder (yellowtail), skinless,10-lb.pkg.	Boston	lb.	.31	.31	108.7	108.7	108.7	119.2
Haddock, sml.,skins on,10-lb.cello-pack	Boston	lb.	.28	.27	104.1	100.4	100.4	92.0
Ocean perch,skins on, 10-lb.cello-pack	Gloucester	lb.	.23	.23	112.0	110.7	105.9	114.4
Shrimp, lge.(26-30 count), 5-lb. pkg.	Chicago	lb.	.72	.72	110.3	111.1	109.9	121.1
Canned Fishery Products:					96.4	94.5	94.5	97.6
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	case	17.70	17.70	93.9	93.9	93.9	104.4
Tuna, lt. meat, solid pack, No. 1/2 tuna (7 oz.), 48 cans/cs.	Los Angeles	case	16.20	15.30	101.1	95.5	95.5	90.5
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 48 cans/cs.	Los Angeles	case	9.25	9.25	108.0	108.0	108.0	106.8
Sardines, Maine, keyless oil, No. 1/4 drawn (3 1/4 oz.), 100 cans/cs.	New York	case	8.20	8.20	87.3	87.3	87.3	79.3

1/Represent average prices for one day (Monday or Tuesday)during the week in which the 15th of the month occurs.
2/Revised.

Canned tuna prices increased 5.9 percent from December to January and this accounted for the 2.0-percent increase for the canned fishery products subgroup index; other canned items remained unchanged. The market for canned fish was very good. Maine sardines with a less-than-normal pack met little competition because the California sardine pack was practically nil. All canned fishery products prices this January were up from a year earlier, except pink salmon prices which were down 10.1 percent.

FOREIGN

International

INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION

FIRST MEETING: The First Meeting of the International North Pacific Fisheries Commission was held at Washington, D. C., beginning on February 1, 1954. The Government of the United States was host, according to a January 20 release from the State Department.

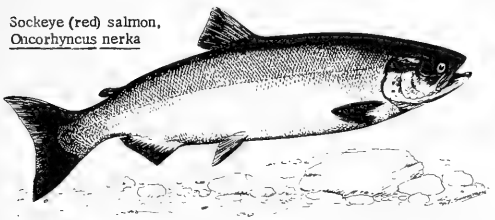
The establishment of the International North Pacific Fisheries Commission is provided for in the International Convention for the High Seas Fisheries of the North Pacific Ocean which was signed at Tokyo on May 9, 1952, on behalf of Canada, Japan, and the United States. It became effective on June 12, 1953, upon the exchange of ratifications by the three governments at Tokyo. The treaty was ratified by the President of the United States on July 30, 1952, with the advice and consent of the Senate, given July 4, 1952.

The participants are the Governments of Canada, Japan, and the United States. Invitations to send an observer were extended to the Food and Agriculture Organization of the United Nations, the International Pacific Halibut Commission, the International Pacific Salmon Fisheries Commission, the International Commission for the Northwest Atlantic Fisheries, the Inter-American Tropical Tuna Commission.

The purposes of the conference are to decide matters of organization, to prepare coordinated programs of research on stocks of fish that are of common concern to the three countries, and generally to carry out the commitments of the Convention.

PACIFIC SALMON FISHERIES COMMISSION

FRASER RIVER SOCKEYE SALMON INCREASE: The 1953 escapement of sockeye salmon to the Fraser River has been the largest on this cycle since 1913, reports the November 1953 Trade News, a Canadian Department of Fisheries publication. The cycle catch was the largest since 1917. Officials of the International Pacific Salmon Fisheries Commission report that the season's run totaled 5,250,000 sockeye with a catch taken from this number of slightly over 4,000,000 fish, equally divided between the fishermen of Canada and the United States. As a result of the increase in the 1953 run over the previous cycle in 1949, an additional C$7,000,000 was returned to the fishing industry of the two countries.



Sockeye (red) salmon, Oncorhyncus nerka

The run of sockeye salmon to the Fraser River this past season was a revival, in part at least, of the great 1913 run almost exterminated by the Hell's Gate slide of that year. All of the original races to the upper Fraser are now reviving as the result of the Hell's Gate fishways and scientifically designed regulations built and formulated by the International Pacific Salmon Fisheries Commission.

The outstanding features of the 1953 run were as follows:

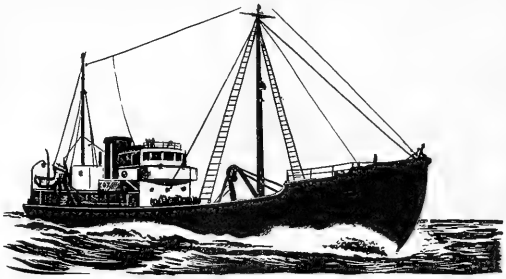
1. The Nechako River Watershed, including the Stuart and Fraser Lake districts, produced over 2,500,000 sockeye salmon or slightly over 50 percent of the entire 1953 run of Fraser sockeye. Closure of the Alcan's dam in late 1952 greatly reduced the stream flow in this system, but fisheries protective measures and a rainy season prevented any known losses to the escapement.
2. The run to the famous Quesnel district increased from 20,000 spawners in 1949 to 102,000 in 1953. Restoration of the area to its original status as a sockeye producer appears assured.
3. A total of 9,000 spawners appeared in the Driftwood River, northernmost tributary of the Fraser, located over 700 miles from Steveston. Only 450 sockeye were observed in this area in 1949.
4. Newly-revived runs were established to Pitt Lake and Portage Creek in the Seton Anderson Lake system.

Commission officials are particularly optimistic about the future of this cycle run and believe that on the basis of the 1953 escapement another increase is due when the run returns in 1957.

FOOD AND AGRICULTURE ORGANIZATION

INTERNATIONAL FISHING BOAT CONGRESS--MIAMI SESSION: The Miami (Florida) Session of the International Fishing Boat Congress was held November 16-20, 1953.

The Food and Agriculture Organization of the United Nations (FAO) arranged this meeting in cooperation with the Fish and Wildlife Service of the U. S. Department of the Interior. This was the second session of a similar congress arranged in cooperation with the Ministere de la Marine Marchande in Paris October 12-16, 1953.



At the Miami session 68 technical papers were submitted and a total of 114 participants from 17 different nations were registered. A representative from the United Nations Korean Rehabilitation Administration (UNKRA) was also in attendance.

The first day of the congress took the form of a joint meeting with the Sixth Annual Session of the Gulf and Caribbean Fisheries Institute.

On nomination of the United States delegation, the Congress on October 13 elected H. C. Hanson, consulting naval architect, Seattle, Washington, as Chairman, and the following were elected chairmen of the individual technical sessions:

Boat Types	Commander A. C. Hardy, London.
Hull Shape and Sea Behavior	G. C. Nickum, Consulting Naval Architect, Seattle, Washington.
Stability, Safety at Sea	Enrique R. A. Carranza, Argentine Naval Commission in the U. S. A.
Engines	R. T. Whiteleather, Branch of Commercial Fisheries, U. S. Fish and Wildlife Service.
Deck Gear	A. Labrie, Deputy Minister of Fisheries, Quebec, Canada.
Research Vessels	A. L. Prichard, Director of Conservation and Development Services, Department of Fisheries, Ottawa, Canada.
Factoryships	H. C. Hanson, Consulting Naval Architect, Seattle, Wash.

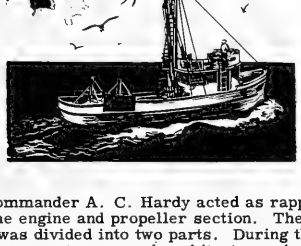
The papers, which had been distributed in advance, were summarized by rapporteurs in order to provide as much time as possible for discussions. Authors were given an opportunity to add to the rapporteur's summary. Several recordings

of contributions made to the discussions during the Paris session were transmitted to the participants in Miami.

Jan-Olof Traung, FAO naval architect, acted as rapporteur for the session on Boat Types on Monday and summarized 24 papers. The interesting discussion which followed centered on problems of general arrangement, construction methods, use of wood or steel, the advisability of using laminated wooden constructions, and the question of beach landing craft.

E. R. Gueroult, consulting naval architect and representative of the French Government, acted as rapporteur for the session on hull shape and sea behavior. In conclusion, the participants urged FAO to continue its work in collecting data on tank tests on fishing boats and to publish them in a uniform style for the benefit of fishing-boat designers in various parts of the world. It was also stressed that FAO should encourage and coordinate research, especially on the subject of sea behavior.

Commander Leonard E. Penso, Merchant Marine Technical Division, U. S. Coast Guard Headquarters, Washington, D. C., acted as rapporteur for the papers dealing with stability and safety at sea. The lack of stability and safety regulations for fishing vessels under 150 ft. (45.8 m.) in the United States was the cause of a lively discussion regarding the advisability of introducing certain minimum standards for fishing boats. A special committee was appointed to study this problem further during the time of the Congress.



Commander A. C. Hardy acted as rapporteur for the engine and propeller section. The discussion was divided into two parts. During the first, users, operators, naval architects, and a number of speakers were invited to contribute. General opinion was divided on questions such as 4-stroke versus 2-stroke engines; slow-running versus high-speed types; engine types (such as semi-Diesel versus Diesel); method of drive (such as direct drive, Diesel-electric drive, or controllable pitch propellers). During the second part of the discussion, in which engine manufacturers mainly participated, information was given about the design and characteristics of modern high-speed engines.

The papers on deck gear, summarized by Sidney Shapiro, U. S. Fish and Wildlife Service, dealt with the use of hydraulics for driving deck winches, the use of a drum for hauling purse seines, and the use of simplified containers for storing live bait for the tuna fisheries. The discussion centered on these items and also on the experiences that had been gained in using electric drive for trawl winches.

R. T. Whiteleather, Assistant Chief, Branch of Commercial Fisheries, U. S. Fish and Wildlife Service, reported on research vessels and supplemented his report with information about the design and operation experiences of the Service's Pacific Coast exploratory fishing vessel John N. Cobb. Additional information about research vessels was given by other participants.

A special session was arranged on the subject "Development of Fisheries in Underdeveloped Areas." The discussions were introduced by Mogens Jul, Chief Technologist, Fisheries Division, FAO, Rome, who compared the minute amount of money spent in technical assistance by all different agencies in the world with the expenses to build one single battleship. He made some general remarks about the difficulty of finding the right expert for the right place and discussed general experiences in the conducting of technical assistance programs in the past. Jan-Olof Traung gave some typical examples of FAO's work in the development of boats and gear. The valuable discussion emphasized the necessity of not carrying out technical assistance programs faster than they can be absorbed by the receiving country, and that only such methods or equipment should be proposed as had shown favorable results elsewhere.

Mogens Jul, FAO, reported on factoryships. He was rather doubtful of the immediate future of this type of fishing enterprise except in such conditions where distance from home port make other types of operation impossible. He pointed out that while factoryships could be made economically and technically successful under optimal conditions, there will always remain in use other kinds of fishing boats in varying sizes, and that it was important not to consider factoryships as superseding other kinds of fishing boats.

On October 14 the U. S. Fish and Wildlife Service arranged an excursion to visit one of their research vessels which was equipped with underwater television, and participants were also shown through the Marine Laboratory of the University of Miami. They were also invited to an Economics session at the Gulf and Caribbean Fisheries Institute dealing with the problem of financing fishing vessels.

The Congress adopted a resolution similar to the one adopted by the Paris Session, as follows:

"Whereas the Miami Session of the First International Fishing Boat Congress has taken note of the present state of experimentation and research in the design and construction of fishing boats, and in their safety and security in operation, and

"Whereas it finds that these subjects deserve a common further study in order to avoid the dispersion of efforts and to facilitate the comparison of the results obtained,

"Therefore it recommends that FAO should organize a permanent international cooperation on a wider basis with the effective assistance of the

Naval Architects, Marine Engineers, Boat Builders, Scientific Societies and Research and Other Organizations of the interested countries, and

That, for this purpose, a provisional Committee for the Americas should be formed to instigate the necessary contacts and to organize and supply vital impetus to this cooperation."

The following were nominated for this Committee: H. C. Hanson, Naval Architect - Chairman, 102 Colman Ferry Terminal, Seattle 4, Wash.; Wm. C. Miller, Marine Engineer - Secretary, 577 Spreckels Building, San Diego 1, Calif.; Geo. C. Nickum, Naval Architect, Polson Building, Seattle, Wash.; Francis Minot, Marine Fisheries Eng. & Res. Inst., Woods Hole, Mass.; Dwight S. Simpson, Naval Architect, 650 Centre St., Newton, Mass.; Howard I. Chapelle, Naval Architect, RFD 1, Cambridge, Md.; Jorge M. Sanchez A., Naval Architect, Presa Rodriguez 33, Mexico 10, D.F.; Carlos Santa Maria (Pro Tem for Chile), Corporacion de Fomento de la Produccion, 37 Wall Street, New York 5, N. Y.; Wm. S. Hines, Dept. of Trade and Industry, Halifax, N. S., Canada.

List of Papers:

Paper No.	Title and Author
1	SOME AMERICAN FISHING LAUNCHES, by H. I. Chapelle, Naval Architect, Cambridge, Md.
2	TANK TESTING TECHNIQUE, by W. P. A. van Lammeren, Superintendent, Wageningen Model Basin, Wageningen, Netherlands.
3	THE INFLUENCE OF OPERATIONAL FACTORS ON THE DESIGN OF A MODERN TUNA CLIPPER, by J. F. Petrich, Naval Architect, Western Boat Building Co., Tacoma, Wash.
4	MODERN IRISH FISHING BOATS, by John Tyrrell, John Tyrrell and Sons, South Quay, Arklow, Ireland.
5	STABILITY OF FISHING VESSELS, by George Nickum, Naval Architect, W. C. Nickum and Sons, Seattle, Wash.
6	THE DESIGN AND CONSTRUCTION OF BRITISH COLUMBIA FISHING VESSELS, by R. F. Allan, Naval Architect, Vancouver, B.C., Canada.
7	COMBINATION FISHING VESSEL OF THE PACIFIC, by H. C. Hanson, Naval Architect, Seattle, Wash.
8	THE TUNA CLIPPER OF THE PACIFIC, by H. C. Hanson.
9	THE TROLLING BOAT AND ITS OPERATIONS IN THE PACIFIC COAST, by H. C. Hanson.
10	THE GILL NET BOAT AND ITS OPERATIONS IN THE PACIFIC COAST, by H. C. Hanson.
11	FISHING VESSEL LIVE-BAIT EQUIPMENT, by C. B. Carlson, Fishery Engineer, Chief, Gear Developments and Research Program, U. S. Fish and Wildlife Service, c/o University of Miami Marine Laboratory, Coral Gables, Fla.
12	THE EXPERIMENTAL FREEZING TRAWLER "DELAWARE," by C. G. P. Oldershaw, Refrigeration Engineer, Fishery Technological Laboratory, U. S. Fish and Wildlife Service, East Boston, Mass.
13	SOME ASPECTS OF THE MOTORIZATION OF FISHING CRAFT IN CHILE, by Paul Ziener, Ingeniero Naval, Valparaiso, Chile.
14	HYDRAULIC DECK EQUIPMENT, by Hans Vestre Huse, Hydraulik A/S, Brattvaag, Norway.
15	PAKISTAN FISHING CRAFT, by M. R. Qureshi, Director, Central Fisheries Department, Karachi, Pakistan; H. Magnusson, Naval Architect, Goteborg, Sweden; J. O. Traung, Naval Architect, Food and Agriculture Organization, Rome, Italy.
16	LOADING AND CHANGE OF TRIM ON SMALL TRAWLERS, by W. J. McInnis, Naval Architect, Eldredge-McInnis, Inc., Boston, Mass.
17	SAFETY AT SEA FOR FISHING VESSELS UNDER NETHERLANDS ACTS AND REGULATIONS, by J. G. de Wit, Deputy Shipping Inspector, Scheepvaart Inspectie, The Hague, Netherlands.
18	HEAVY DUTY FISHING ENGINES, by R. G. Andersen, Manager, A/S Tuxham, Denmark.
19	BOMBAY FISHERMAN FORGES AHEAD, by S. R. Setna, Director of Fisheries, Bombay, India.
20	SAFETY AT SEA, by Wm. C. Miller, Wm. C. Miller and Associates, Marine Surveyors and Marine Engineers, San Diego, Calif.
21	CALCULATING THE STABILITY OF TUNA CLIPPERS, by D. W. Dickie, Naval Architect and Marine Engineer, Oakland, Calif.
22	THE DEVELOPMENT OF THE NEW ENGLAND TRAWLER, by D. S. Simpson, Naval Architect and Marine Engineer, Newton, Mass.
23	SOME UNUSUAL FEATURES IN THE EQUIPMENT OF A DEEP SEA TRAWLER, by Mario Costantini, Dottore Ingeniere, Direttore del Cantiere San Marco di Trieste.
24	THE OCEANOGRAPHIC RESEARCH VESSEL, by Francis Minot, Director, Marine and Fisheries Engineering Research Institute Inc., Woods Hole, Mass.
25	BUQUES DE PESCA ESPANOLES (Spanish Fishing Vessels), by Jose M. Gonzalez-Llanos y Caruncho, Ingeniero Naval, El Ferrol del Caudillo, Spain. (25A - Spanish Text; 25B - English Summary.)
26	QUELQUES NOTES SUR LES GRANDES CHALUTIERS (Some Notes on Large

Paper No. Title and Author

Trawlers), by H. E. Jaeger, Professeur de construction navale a l'Ecole Superieure Polytechnique de Delft, Pays-Bas.

27 - BEACH LANDING CRAFT USED FOR FISHING IN EUROPE, by Hans K. Zimmer, Naval Architect, Bergen, Norway.

28 - FIXED-BLADE AND CONTROLLABLE-PITCH PROPELLERS FOR FISHING BOATS, by J. A. van Aken, Head of Propeller-Design Department, Lips Propeller Works, Drunen, Netherlands.

29 - SEAWORTHINESS AND SAFETY OF TRAWLERS IN A SEAWAY, by W. Moeckel, Hamburgsche Schiffbauversuchanstalt, Hamburg, Germany. (29A-Abstract and Figures; 29B - Full paper without figures.)

30 - RECENT DEVELOPMENTS IN FISHING VESSEL DECK GEAR, by C. B. Carlson, Chief, Gear Development and Research Program, U. S. Fish and Wildlife Service, c/o University of Miami, Marine Laboratory, Coral Gables, Fla.

31 - THE USE OF MEDIUM SPEED DIESEL ENGINES ON BOARD FISHING VESSELS, by D. E. Brownlow, Technical Director, Mirrless, Bickerton and Day Ltd., Stockport, England.

32 - MODERN PROPULSION PLANTS FOR FISHING VESSELS, by Kurt Schmidt and Theodor Schumacher, Klockner-Humboldt-Deutz A. G., Cologne, Germany.

33 - LES CHALUTIERS A MOTEUR FRANCAIS (The French Motor Trawlers) (In French and English), by E. R. Gueroult, Architecte Navale, Paris, France.

34 - INSTALLATION A BORD D'UN CHALUTIER DE GRANDE PECHE D'UN APPAREIL MOTEUR A GENERATEURS A PISTONS LIBRES ET A TURBINE A GAZ (Free Piston Generators and Gas Turbine Propulsion on Board of a Deep-Sea Trawler), by A. Augustin Normand, Fils, Directeur des Ateliers et Chantiers Augustin Normand, Le Havre, France.

35 - HELICES A AILES ORIENTABLES A BORD DES CHALUTIERS (Controllable Pitch Propellers for Trawlers), by Marcel Rouchet, President Directeur-General des Ateliers et Chantiers de Bretagne, Nantes, France.

36 - LA TRANSMISSION HYDRAULIQUE APPLIQUEE AUX TREUILS DE PECHE (Hydraulic Transmission applied to Trawl Winches), by Paul Guinard, Secretaire General des Etablissements "Pompes Guinard," Saint-Cloud, France.

37 - LA COMMANDE ELECTRIQUE DES TREUILS DE PECHE (Electrically Driven Trawl Winches), by Maurice Graftiaux, Chef des Laboratoires des Etablissements Sautter-Harle, Paris, France.

38 - REMARQUES SUR LES CHALUTIERS TYPE CORPORATION EQUIPES DE MOTEURS DIESEL a 4 TEMPS a VITESSE LENTE (Some Remarks on "Corporation" Type Trawlers Fitted with 4-Stroke Low-Speed Diesel Engines), by Jean Faure, Chef du Service Peche, Societe Generale de Constructions Mecaniques, La Courneuve, France.

39 - CONSIDERATIONS SUR LE PROBLEME DE LA PROPULSION DES CHALUTIERS PAR MOTEURS DIESELS a 2 et 4 TEMPS (Notes on the 2- and 4-stroke Diesel Engines as Trawler Propulsion), by Andre Dussardier, Ingenieur Civil du Genie Maritime, Compagnie de Construction Mecanique Sulzer et Atiliers et Chantiers de la Loire, Paris.

40 - DISPOSITIONS NOUVELLES CONTRIBUANT A L'AMELIORATION DES CONDITIONS D'EXPLOITATION DES CHALUTIERS (New Developments Contributing to the Improvement of the Trawler Operations), by P. Bain, Ingenieur Civil du Genie Maritime, Directeur Technique de la Societe MacGregor-Comarain, Neuilly-sur-Seine, France.

41 - VIBRATION IN SMALL SHIPS, by James Whitaker, H. Widdop and Co., Ltd., Marine Diesel Engine Builders, Keighley, England.

42 - NEW MATERIALS IN FISHING VESSEL CONSTRUCTION AND OPERATION, by E. C. Goldsworthy, Marine Consultant, Weybridge, England.

43 - FISHERIES RESEARCH AND EXPERIMENTAL VESSELS, by G. L. Kesteven, Chief Marine Biologist, Food and Agriculture Organization, Rome, Italy.

44 - SOME ECONOMIC ASPECTS OF THE DESIGN OF FISHING CRAFT WITH PARTICULAR REFERENCE TO UNDERDEVELOPED AREAS, by C. Beever, Fisheries Economist, Food and Agriculture Organization, Rome, Italy.

45 - OUTLINE TO A CATALOGUE OF FISHING BOAT TANK TESTS, by Jan-Olof Traung, Naval Architect, Fisheries Division, Food and Agriculture Organization, Rome, Italy.

46 - COSTINGS AS A MEANS OF RATIONALIZED FISHING BOAT CONSTRUCTION, by A. N. Christensen, President, Ancas Traeskibsbyggeri, Oslo, Norway.

47 - MODERN DIESEL ENGINE TRAWLERS, by Robert Kolbeck, Maschinenfabrik Augsburg-Nurnberg AG, Augsburg, Germany.

48 - MODERN GERMAN FISHING VESSELS, by H. Kannt, Dipl. Ing., Director, Aktien-Gesellschaft "Weser" Seebeckwerft, Bremerhaven, Germany.

49 - PROBLEMAS EXISTENTES EN LA CONSTRUCCION Y PROYECTO DE EMBARCACIONES PESQUERAS (Problems

Paper No.	Title and Author
	of Design and Construction of Fishing Boats), by L. Fernandez Munoz, Ingeniere Naval, Asociacion de Ingenieros Navales de Espana, Madrid, Spain.
50 –	THE RELATION BETWEEN FISHING GEAR AND VESSELS, by A. V. Brandt, Dr., Oberreg. Rat, Institut fur Netz- und Materialforschung, Hamburg, Germany.
51 –	PROTECTION OF FISHING VESSELS AGAINST TEREDOS AND FOULING, by H. Kuhl, Federal Research Institute of Fisheries, Institute of Inshore and Freshwater Fisheries, Hamburg, Germany.
52 –	CONTROLLABLE PITCH PROPELLERS, by P. Stoffel, Dipl. Ing., Escher Wyss Maschinen GmbH, Ravensburg, Germany.
53 –	HIGH SPEED DIESELS FOR USE IN FISHING CRAFT, by W. C. Gould, Vice President and General Manager, Diesel Engine Corporation, New York, N. Y.
54 –	THE OWNER'S VIEWPOINT, by Basil Parkes, Managing Director, St. Andrew's Stream Fishing Co. Ltd., Hull, England.
55	DEEP SEA FACTORY SHIPS, by D. B. Cunningham, Naval Architect, General Manager, Brooke Marine Ltd., Lowestoft, England.
56 –	OIL ENGINES FOR TRAWLERS, by C. J. Hepton, Marine Engineer, Hepton Brothers, St. Andrew's Dock, Hull, England.
57 –	SEMI DIESELS VERSUS DIESELS, by Ivar Stokke, Dipl. Ing., Norges Tekniske Høgskole (The Institute of Technology of Norway), Trondheim, Norway
58 –	SOME DATA ON THE MOTORIZATION OF THE SMALL FISHING BOATS IN PORTUGAL, by Joaquim Gormicho Boavida, Fishery Research Investigator, Gabinete de Estudos das Pescas, Lisbon, Portugal.
59 –	SOME ASPECTS OF THE MOTORIZATION OF THE SCOTTISH INSHORE FISHING FLEET, by E. George Bergius, The Bergius Company, Ltd., Glasgow, Scotland.
60 –	FISHING BOATS IN ICELAND, by Bardur G. Tomasson, M.I.N.A., Consulting Engineer, Fiskifelag, Reykjavik, Iceland.
61 –	THE POST WAR RECONSTRUCTION OF THE DUTCH COASTAL FISHING FLEET, by W. Zwolsman, Naval Architect, Zaandam, Netherlands.
62 –	LA PROPULSION DES CHALUTIERS PAR MOTEURS DIESELS AVEC REDUCTEURS A DEMULTIPLICATION VARIABLE (Propulsion of Trawlers by Diesel Motors with Variable Speed Reduction Gears), by Alexandre Chardome, Directeur du Chantier Naval D'Ostende de la S.A. Beliard, Crighton et Co., Bruges, Belgium.
63 –	FREEZING AT SEA, by G. C. Eddie, Mechanical Engineer, Torry Research Station, Department of Scientific and Industrial Research, Aberdeen, Scotland.
64 –	CONTROLLABLE PITCH PROPELLERS FOR FISHING CRAFT, by K. G. Rosenthal, Ingenieur, Burmeister and Wain, Copenhagen, Denmark.
65 –	THE CONSTRUCTION AND USE OF JACKETED, COMPLETELY REFRIGERATED FRESH FISH HOLDS, by W. A. MacCallum, Development Engineer, Fisheries Research Board of Canada, Halifax, Nova Scotia, Canada.
66 –	REVERSABLE PITCH PROPELLER, by J. Højsgaard, Chief Engineer, A/S Hundested Motorfabrik, Hundested, Denmark.
67 –	STATEMENT, by H. E. Jaeger, Professeur de Construction Navale, Ecole Superieure Polytechnique, Delft, Netherlands.

All the papers and discussions are scheduled to be published by Arthur J. Heighway Publications Ltd., 68 Victoria St., London S.W. 1, England.

At the Paris Session of the International Fishing Boat Congress 200 participants were registered from 24 different nations, and 65 technical papers were presented. These same papers with a few additions were presented at the Miami Session. Representatives from the International Labour Office, World Meteorological Organization, and the International Commission for the Northwest Atlantic Fisheries were also in attendance at the Paris session, and the meetings were conducted in the same manner as at the Miami Session.

NOTE: See Commercial Fisheries Review, December 1953, p. 31; August 1953, pp. 24-5.

(NORTH EUROPEAN) OVERFISHING CONVENTION

SECOND MEETING OF PERMANENT COMMISSION: The second meeting of the Permanent Commission set up under the International Fisheries Convention of 1946, known as the "Overfishing Convention," was held in London, England, November 3 to 6, 1953. Eleven of the twelve signatory governments--Belgium, Denmark, France, Iceland, the Irish Republic, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, and the United Kingdom--sent delegations, while Poland was represented by an observer. Observers from the Federal German Republic also attended upon invitation of the Commission and they indicated that their country might accede to the Convention early in 1954, reports a November 19 U. S. Embassy dispatch from London.

Several delegations put forward proposals for the alteration of the provisions of the Convention (due to come into force on April 5, 1954) affecting the size of the net meshes, the size limits of fish to be retained for landing and sale, and the extent of the waters covered by the Convention.

Two conclusions were reached on proposals to modify the provisions of the Convention on the minimum mesh size of nets:

(1) For a transitional period of not more than two years from April 5, 1954, the minimum size of mesh should be 75 mm. (3.0 inches) instead of 80 mm. (3.2 inches) in the waters for which 80 mm. is prescribed in the Convention (this includes inshore, near, and middle waters). This is a unanimous decision.

This means that the minimum size of trawl nets will be 75 mm. (3.0 inches) in inshore, near, and middle waters and 110 mm. in distant waters. The Fisheries Minister in the United Kingdom will soon issue an order to that effect.

(2) The minimum mesh for seine nets from April 5, 1954, should be 70 mm. (2.8 inches) in the waters for which the Convention at present prescribes a mesh of 80 mm. (3.2 inches) and 100 mm. (3.9 inches) in the distant waters for which it prescribes 110 mm. (4.3 inches). This is a conclusion accepted by all countries represented except one--Norway, who has still to determine its attitude.

The Governments adhering to the Convention are under an obligation to take steps by April 5, 1954, to bring into force the provisions of the Convention as modified by unanimous decisions of the Commission.

If this later proposal is unanimously agreed in the Commission, the minimum size of seine mesh will be 70 mm. (2.8 inches) for inshore, near, and middle waters and 100 mm. (3.9 inches) for distant waters; if it is not, the minimum size of mesh for seines will be the same as for trawls, i. e., 75 mm. (3 inches) in inshore, near, and middle waters and 110 mm. (4.3 inches) in distant waters. A further announcement will be made on the subject as soon as the position becomes clear.

Denmark sought to have two changes made in the Convention on the grounds that there had been two important changes in Denmark's fishing since 1946, reports a November 30 U. S. Embassy dispatch from Copenhagen. First, the importance of the catch for industrial purposes has increased tremendously; and second, the catch of common sole is now of significant economic importance whereas it was not in 1946.

About 20 to 25 percent of the fish (mainly herring) caught by Danish fishermen for industrial purposes is made up of whiting. According to the Convention agreed in 1946 the minimum length of whiting permitted is 20 cm. (8 inches). In order to comply with this requirement, the fishermen would need to sort out all those below

20 cm. This would mean greatly increased work, and according to the Danes would make industrial fishing unprofitable. The Danish delegates suggested that the Convention be amended so as to permit whiting below 20 cm. up to 20 percent of the weight of the catch. The suggested amendment was not passed.

For the catch of common sole, nets of 60-65 mm. (2.4-2.6 inches) mesh size have been used. The Convention, however, requires nets of 80 mm. (3.2 inches) mesh size. The Danish delegates maintained that the increased mesh size would reduce the catch by one-third and also make this type of fishing unprofitable. They suggested that the Convention be changed to permit a mesh size of 70 mm. (2.8 inches). An agreement was reached that for a trial period of two years Danish fishermen be permitted to use mesh-size nets of 75 mm. (3 inches).

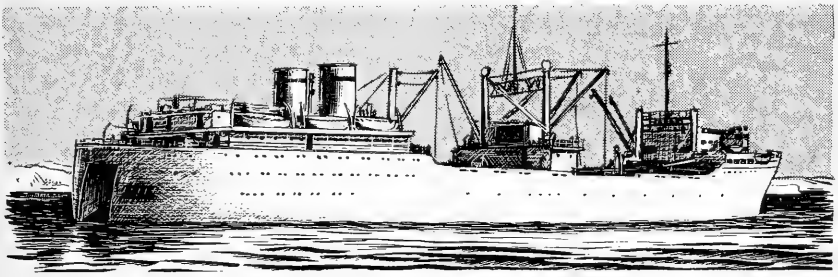
The remaining proposals are to be the subject of further scientific study and consultation among the countries which proposed them for further discussion at the next meeting of the Commission in Copenhagen in May 1954. Before that time the Commission wished to be informed of the measures being taken by all member countries to enforce the requirements of the Convention so that consideration could then be given as to whether any further steps should be taken.

The United Kingdom Government also informed the Commission that it intended to lay before all the other signatories its proposals for a revised Convention which would resolve the difficulties consequent upon the different interpretations which had been put upon the scope of their powers at the first meeting. This would meet what was believed to be the general desire that conservation measures need not necessarily be restricted to the size of the net meshes and the size limits of fish.

Note: See Commercial Fisheries Review, June 1953, p. 42.

WHALING

FACTORYSHIPS TO USE MORE HELICOPTERS: Experts believe that the whaling factoryship fitted with a turntable flight deck for the helicopter will soon be standard equipment on most Antarctic whale hunts, reports the November 1953 South African Shipping News and Fishing Industry Review. Orders have recently been placed by a



Modern Whaling Factoryship

number of British and Norwegian whaling operators for the Westland S-55 helicopter, an indication of the increasing use of helicopters for whale-catching operations.

A whaling expedition usually consists of the factoryship and a dozen or more catcher boats which hunt in a wide arc around the factoryship, covering some 50 to 100 miles ahead of it. When a whale is sighted, the catcher boat's crew kill it, inflate it with compressed air, and tow the whale back to the factoryship for processing.

With the helicopter stationed on the factoryship and flying off from a small turntable deck fitted to its stern, the area of search can be extended considerably. The

helicopter ranges well beyond the catcher ships, radios them directions to their target, and searches for "flagged" whales.

The helicopter pilot also keeps a good lookout for ice, and in an emergency can transfer sick men from the small catcher boats to the factoryship.

During a recent season, a helicopter sighted 1,334 whales in 185 flying hours. It has been estimated that a helicopter with an endurance of 9 hours, flying 300-500 feet above the sea, could survey an area of 13,500 square miles during one flight, as against a catcher vessel's 20 hours to cover a third of this area. The added speed of the helicopter also means that a higher proportion of the whales sighted are eventually killed.

For the future, experts believe there is a possibility that helicopters may go further than their present search role and actually attack the whale. The suggestion is to equip a helicopter with a harpoon gun and inflation equipment so that it would be possible for more than half the catcher vessels to be replaced by six or eight large helicopters operating from the factoryship, with only a few tow boats needed to bring the whales back to the factoryship.

Australia

Australian Canned Fish Pack, 1951/52-1952/53

Species	1952/53	1951/52
	Lbs.	Lbs.
Australian salmon ..	3,938,021	3,089,803
Barracouta	2,629,439	3,269,900
Tuna	386,230	142,057
Whitebait	73,623	50,577
Other	550,136	520,096
Total	7,577,449	7,042,433

CANNED FISH PACK, 1952/53: The total pack of Australian canned fish in 1952/53 amounted to over 7.5 million pounds--7 percent more than the 1951/52 pack, reports the October 1953 Fisheries Newsletter, an Australian Government fishery periodical. Barracouta and Australian salmon (Arripis trutta), as usual, comprised the bulk (87 percent) of the production.

NOTE: See Commercial Fisheries Review, July 1953, p. 44; January 1953, p. 38.

* * * * *

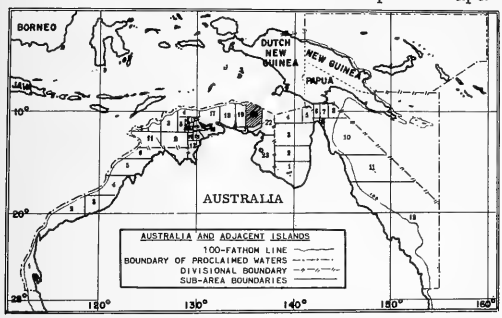
RIGHTS TO CONTINENTAL SHELF RESOURCES PROCLAIMED: A proclamation declaring that Australia has sovereign rights to explore and exploit the natural resources of the sea bed and subsoil of the Continental Shelf adjoining Australia and its territories was issued by the Australian Governor-General September 11, 1953. A similar proclamation affecting the natural resources of the Shelf adjoining the Trust Territory of New Guinea was also issued. These proclamations were issued by Australia under its prerogative as a sovereign state, reports the October 1953 Fisheries Newsletter, an Australian Government fishery periodical.

PEARL FISHERIES ACT AMENDED IN ACCORDANCE WITH CONTINENTAL RESOURCES PROCLAMATION: The same week the Australian House of Representatives passed without opposition the Pearl Fisheries Bill amending the Pearl Fisheries Act 1952/53 to provide for the definition of Australian waters extending to the limits of the Continental Shelf, the proclamation of the boundaries of the Continental Shelf, and the application of the Act within proclaimed waters to all operators irrespective of nationality. The Bill passed the Senate unopposed the next week. The Act was assented to on September 17, 1953, and effective October 12, 1953.

In a speech on the Bill, the Minister for Commerce and Agriculture, said:

"The Pearl Fisheries Act, introduced in 1952 to permit a system of licensing and control of pearl fishing in waters over Australia's Continental Shelf, as amended, will be brought into operation. The licensing system and control measures introduced under the Pearl Fisheries Act will be enforced on all pearlers and ships engaged in pearling in Australian waters irrespective of nationality. Any infringement of the licensing provisions will be enforced in the normal manner in our Courts."

In a later statement (November 9, 1953), the Minister made it clear that the Australian Government did not accept the Japanese contention that the Pearl Fisheries Act does not affect Japanese vessels in waters outside of the territorial limits of Australia, a November 17 U. S. Embassy dispatch reports. He pointed out, however, that subject to an undertaking from the Japanese that they would conduct their pearling operations in conformity with the Australian policy of regulation and conservation pending the Court's decision, the Government would be willing to submit the question to the International Court of Justice.



Shows Australian pearling waters proclaimed September 25, 1953, under the Pearl Fisheries Act 1952-53. The five divisions and subareas are shown: Western Australian Division, 6 subareas; Northern Territory, 23; Queensland, 12; Papua, none; New Guinea, none. The shaded Northern Territory subarea 20 is exempt from the proclamation and the Japanese may fish in this area without a license for the current season. Licensing came into force on October 12.

The Minister called attention to the fact that the Japanese Government has not been accepted as a party to the Statute of the International Court. Rather than invoke measures to delay submission of the question to the Court, however, the Australian Government had agreed to proceed as soon as possible with such submission, being of the opinion that it was in the interests of friendly international relations to encourage the settlement of differences by recognized judicial bodies, rather than by resort to measures of enforcement.

* * * * *

SPINY LOBSTER INDUSTRY, 1952/53: The spiny lobster catch in Australia during the 1952/53 season (July 1 to June 30) totaled 15,626,560 pounds (round weight), reports the October 1953 Fisheries Newsletter of the Commonwealth Director of Fisheries (table 1). Of this total, 12,280,000 pounds were packed for export and 3,346,560 pounds for domestic consumption.

Table 1 - Australian Spiny Lobster (Crayfish) Catch by States, 1951/52 and 1952/53 1/

State	1952/53	1951/52
	Lbs. 2/	Lbs. 2/
Western Australia	8,098,602	7,790,946
Tasmania	2,744,390	2,052,129
South Australia	3,500,000	3,000,000
New South Wales	528,000	655,470
Victoria	755,568	504,000
Total	15,626,560	14,002,545

1/Fiscal Year July 1 to June 30.
2/Round weight (landed weight).

Spiny lobster exports from Australia in the 1952/53 season totaled 3,941,368 pounds of tails and 130,029 pounds of whole lobster (table 2), with a total value of ŁA1,444,450 (US$3,236,000). As in the past, the United States received the bulk (98 percent) of these exports, nearly all in the form of frozen tails. In the previous season foreign shipments totaled 3,606,095 pounds of tails and 54,472 pounds of whole spiny lobsters, with a total value of ŁA1,777,880 (US$3,940,000).

Export earnings increased 23 percent from the 1951/52 season due to a rise in both the quantity exported and in prices. During the year export prices increased

from 7s. (77 U. S. cents) per pound to 7s. 6d. (84 U. S. cents). This increase in dollar earnings is considered important in Australia's national economy.

As in the Union of South Africa, Australia had to adopt conservation measures. Unless new grounds are opened up, it seems likely that exports from both countries

Table 2 - Australian Spiny Lobster (Tails and Whole) Exports by Country of Destination and State of Origin, 1951/52 and 1952/53

Item	1952/53 Quantity		1951/52 Quantity	
	Tails	Whole	Tails	Whole
	Lbs.	Lbs.	Lbs.	Lbs.
By Country of Destination:				
United States	3,921,558	49,907	3,593,595	4,255
Hawaii	605	-	-	-
Canada	11,455	61,266	10,195	7,000
Singapore	7,750	18,856	2,305	43,217
Total	3,941,368	130,029	3,606,095	54,472
By State of Origin:				
Tasmania	161,715	77,347	17,400	33,480
South Australia	956,475	33,826	556,040	255
Western Australia	2,823,178	18,856	3,032,655	20,737
Total	3,941,368	130,029	3,606,095	54,472

will not rise much above the present level; and the U. S. market can continue to absorb the total quantities available, subject of course to price considerations.

NOTE: See Commercial Fisheries Review, January 1953, pp. 38-40.

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WHALING SEASON, 1953: Australian whaling stations received a total of 2,000 whales in 121 days during the 1953 season that ended on September 18. There were four stations operating during the season. The whale oil production from this season's catch was valued at £A1,520,000 (US$3,405,000), reports the October 1953 Fisheries Newsletter of the Commonwealth Director of Fisheries.

NOTE: See Commercial Fisheries Review, May 1953, pp. 46-7.

Barbados Island (British West Indies)

FISHERIES PRODUCTION, JANUARY-JUNE 1953: Barbados Island's total estimated fisheries production during the first six months of 1953 amounted to almost 15 million pounds, valued at about BWI$2.3 million (US$1.3 million), reports the October 1953 Caribbean Commission Monthly Information Bulletin. In the entire year of 1952 the total catch was just over 9.2 million pounds, and in 1951 it was 6.4 million pounds. The value in 1951 was estimated at BWI$1.0 million (US$0.6 million). This substantial increase in 1953 is attributed to the wider use of gill nets for catching flying fish. It is believed that there is enough fish in Barbadian waters to justify setting up a freezing and cold-storage plant.

Canada

VIEWS ON TERRITORIAL WATERS: Canada has been studying the question of territorial waters and it is the personal opinion of the Canadian Minister of Fisheries that a territorial ocean belt extending seaward 12 miles is better than the present one extending seaward 3 miles, according to a report in the Japanese press.

The Canadian Minister of Fisheries visited Tokyo early in December 1953. The subject of territorial waters was brought up during his visit there when he was questioned on the controversy between Japan and Korea over Korean restrictions on Japanese fishermen. On that matter the Minister is reported to have stated that while he did not wish to become involved in the controversy, it was Canada's view that establishing a fishery line on the high seas beyond a nation's territorial waters could not be effected unilaterally by one nation.

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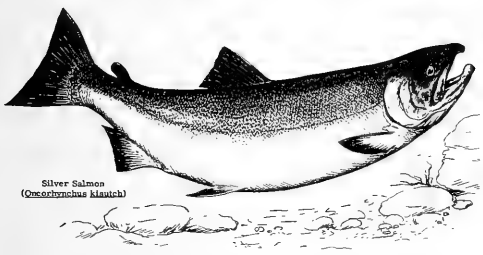
BRITISH COLUMBIA CANNED SALMON PACK, 1953: The 1953 British Columbia salmon canning season ended December 5 with a total pack of 1,821,269 cases (48 1-lb. cans), the Canadian Department of Fisheries reported on December 9 (see table). This was 41 percent more than the 1952 pack of 1,293,435 cases, and is the second largest pack in recent years (1951 pack was 1,955,475 cases). In 1953 increased packs were reported for sockeye (red), chum (keta), pink, and coho (silver) salmon.


Silver Salmon
(Oncorhynchus kisutch)

At the beginning of November, salmon net fishing was restricted to the Fraser River and certain limited areas in District 3. Other areas were closed to net fishing in the interests of conservation on November 3 and by the end of the month all net fishing ceased entirely. In view of the fact that fall salmon spawning requirements had been fulfilled in most of the southern coastal areas, salmon fishing by trolling was authorized on December 1 to carry through until the regular opening of trolling in 1954.

British Columbia Canned Salmon Pack, 1948-53
(In Standard Cases of 48 1-Pound Cans)

Species	1953	1952	1951	1950	1949	1948
	Cases	Cases	Cases	Cases	Cases	Cases
Sockeye (red)	510,100	449,174	428,217	408,041	259,880	260,050
Blueback	2,055	5,581	13,224	7,371	6,876	19,893
Spring (king) .	12,177	9,064	13,631	9,133	21,065	16,251
Coho (silver).	108,115	58,514	300,521	109,272	208,063	193,587
Pink	793,382	675,836	735,494	446,516	709,217	321,514
Chum (keta) .	392,716	91,514	460,740	498,984	226,241	496,928
Steelhead	2,724	3,752	3,648	3,243	2,381	5,686
Totals	1,821,269	1,293,435	1,955,475	1,482,560	1,433,723	1,313,909

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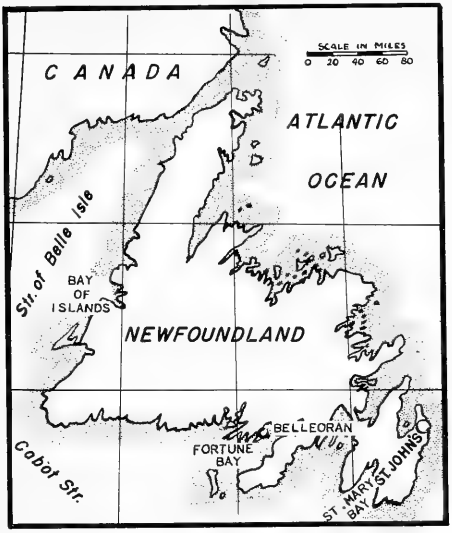
NEWFOUNDLAND MAKES ADVANCE PAYMENTS TO SALT-COD PRODUCERS: The Newfoundland Government November 27, 1953, began making advance payments of C$1.50 per quintal (112 pounds) to producers of salt cod, reports a December 2 U. S. consular dispatch from St. John's. An office for this purpose was opened in St. John's where these advances were available to producers in an effort to meet the monetary difference between 1952 prices and 1953 opening prices. Some sixty Provincial agents elsewhere on the island are likewise receiving applications for these advances. Payments are being made on the strength of buyers' receipts issued to fishermen. Payments will be made on the following basis:

C$1.50 per quintal for dried cod; C$1.50 per 140 pounds for heavy-salted bulk fish; C$1.50 per 224 pounds for light-salted bulk fish.

A Newfoundland Member of the Canadian House of Commons declared before the House on December 1, 1953, that Canada should use "tough bargaining tactics" with Portugal when the latter asks to renew its permit to use east coast Canadian ports in the interests of its fishing fleet. He stressed that sales of salt fish to Portugal had nearly stopped, that Portugal had built a modern fishing fleet from Marshall Plan money, paid higher prices for bait than Newfoundland fishermen could afford, and that Portugal's fleet was now supplying the greater part of that country's need for cod.



NOTE: Also see Commercial Fisheries Review, January 1954, p. 30.

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EMPLOYMENT DECLINES IN THE NEWFOUNDLAND FISHING INDUSTRY: It is estimated that in 1953 the total number of males employed in the Newfoundland fishing industry was about 6,000 at the most, reports a September 18 U. S consular dispatch from St. John's. This compares with an estimate of 10,000 men at the height of the 1952 season and a census report of 31,500 men for 1945.

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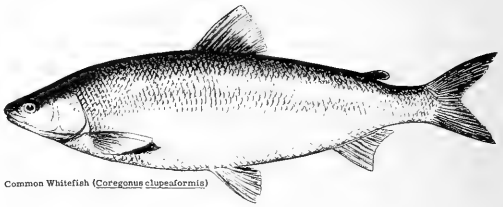
GREAT SLAVE LAKE FISH CATCH, 1952: A successful summer season was experienced in 1953 by fishermen on Great Slave Lake, Northwest Territories, Canada, reports the November 1953 Trade News, a Canadian Department of Fisheries publication. Although there were fewer boats operating and the volume of landings was somewhat lower than in 1952, the average catch per vessel was higher. A total of 110 fishermen manned 39 boats in 1953 as compared to 148 fishermen and 53 boats the previous year.


Common Whitefish (Coregonus clupeaformis)

The landings of whitefish and trout amounted to 3,423,386 pounds (round weight) out of the summer limit of 5,700,000 pounds.

More ice had been put up in the winter of 1952/53 than the previous winter, but the supply was almost exhausted by September 1, 1953. To insure an adequate supply for the 1954 operations, two new icehouses have been built on the north shore of the lake.

Wind storms were not as numerous in 1953 as in the summer of 1952, but they were more severe and accounted for not only lost time but a certain amount of damage to nets, gear, and boats.

Chile

NEW WHALING COMPANY: A new whaling company is being formed to be located at the port of San Carlos, Chile (at the mouth of the River Valdivia), reports the December 26 Foreign Trade, a Canadian Government publication. A capital of 50 million pesos (US$455,000) will be invested. New whaling vessels will be bought in Norway.

Denmark

FROZEN FILLET EXPORTS TO THE UNITED STATES: The only fish fillets exported by Denmark to the United States are frozen cod and plaice fillets. The quantities exported were a little larger in 1952 than in 1951, and in the first eight months of 1953 there was a sharp decline in these exports (see table).

Danish Sales and Actual Exports of Frozen Fillets to the United States

Species	1953						1952								
	January-August			January-June			January-June			July-December			Total (Jan.-Dec.)		
	Qty.	Value		Qty.	Value		Qty.	Value		Qty.	Value		Qty.	Value	
	Metric Tons	1,000 Kroner	1,000 US$	Metric Tons	1,000 Kroner	1,000 US$	Metric Tons	1,000 Kroner	1,000 US$	Metric Tons	1,000 Kroner	1,000 US$	Metric Tons	1,000 Kroner	1,000 US$
Sales of Frozen Fillets to United States: 1/															
Cod	341	836	121	277	709	103	1,027	2,657	385	245	586	85	1,272	3,243	470
Plaice	160	564	82	135	465	67	396	1,486	215	666	2,083	302	1,062	3,569	517
Total	401	1,400	203	412	1,174	170	1,423	4,143	600	911	2,669	387	2,334	6,812	987
Actual Exports to United States: 2/															
Cod	63	214	31	63	214	31	970	2,510	364	124	311	45	1,094	2,821	409
Plaice	139	494	71	130	452	66	295	1,162	168	457	1,414	205	752	2,576	373
Total	202	708	102	193	666	97	1,265	3,672	532	581	1,725	250	1,846	5,397	782

1/Includes fillets sold to United States interests but shipped to other countries (chiefly West Germany).
2/Fillets shipped only to the United States, including small quantities sold to other countries (chiefly the Netherlands and West Germany) for consignment to the United States.

Fillets sold to United States interests but not actually shipped to the United States were consigned to West Germany. Also importers in West Germany and the Netherlands purchased a small quantity of fillets from Denmark for shipment to the United States.

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FAROE ISLANDS FISHERIES, 1953: The catch of fish for salting and drying in the Faroe Islands during 1953 totaled only 20,000 metric tons as compared with 32,000 tons in 1952, reports a November 27 U. S. Embassy dispatch from Copenhagen. A strike in the fleet early in the year was partly responsible for the decline, but an important contributing factor was the shift from cod to herring fishing by a large part of the fleet late in July. During 1953 about 90 cutters, as compared with only 20 in 1952, engaged in herring fishing in the area north of the Faroe Islands (between 65° and 68° N. latitude). The catches in the 1952 season (July-October) were equal to 30,000 barrels of salted export herring. This year the exports will probably amount to four times as much, 120,000 barrels, of which 80,000 barrels has been sold to Russia.

The 1953 Faroe Islands' herring catch was equal to 130,000 barrels, with an export value of between 12 and 15 million kroner (US$1.7-2.2 million) as compared with a reported income of 40-50 million kroner (US$5.8-7.2 million) for other fish.

At Copenhagen, one of the two Folketing members from the Faroe Islands joined in parliamentary discussion on November 20, 1953, of a bill of importance to the Faroe Islands. He stated that the market for export fish had been poor in 1953, and prospects for the future were obscure and probably unfavorable, due primarily to the very large unsold stocks of salted and dried fish in Norway and Iceland. To the tra-

ditional principal markets for the Faroe fish exports (Spain, Italy, and Greece), Brazil has recently been added; there a very dry-cod type has been favorably received. However, transportation problems (transit via Norway), high costs of packing materials, and especially Brazilian payments difficulties are offering many obstacles to development of that export market.

Total Faroe stocks of unsold fish for export was estimated at about 6,000 metric tons, valued at 8 to 9 million kroner (US$1.2-1.3 million). There is also a quantity of unsold herring of relatively minor value. The value of the unsold stocks was emphasized by the speaker in order to give weight to the necessity of Danish credits for the Islands. During the discussion both Folketing members from the Faroe Islands emphasized how necessary it is that Denmark be willing to finance the fishing industry to a greater extent than before, with operational credits as well as for construction of new vessels.

Ecuador

FISHING LICENSE REVENUE TO BUY WATER PATROL EQUIPMENT: A decree has been prepared by the Ecuadoran Minister of Economy that will amend the present fishery legislation by providing that a portion of the revenues from fishing licenses must be devoted to the acquisition of water patrol equipment. Press reports indicate that the proposal has been agreed to by the Cabinet, a December 14 U. S. Embassy dispatch from Quito states.

Formosa (Nationalist China)

FISHERIES PRODUCTION GOAL FOR 1953 LOWERED: The Formosan fisheries production goal was revised downward from 145,180 metric tons to 127,000 metric tons tons as landings during the first nine months of 1953 were at the annual rate of 127,467 metric tons, reports a November 19 U. S. Embassy dispatch from Taipei, Taiwan. The total catch for the first nine months of 1953 amounted to only 95,600 metric tons, due to the decreasing catch by the coastal (inshore) fisheries.

It is estimated that 1,950 fishing vessels with a total tonnage of 13,000 gross tons can be made available by the end of 1953 as compared with 1,779 vessels with 26,806 gross tons at the end of 1952.

The 1954 production goal has been set at 145,000 metric tons, but it is probably too high in view of the decreasing catch from coastal fishing. Taiwan needs around 200,000 metric tons of fishery products annually for domestic consumption, and it is estimated that, if the production plan can be realized, about US$6 million that would otherwise be paid for imports will be saved in 1954.

The first part of a vessel program inaugurated in March 1953 by the Provincial Government was completed on October 28, when 20 of the 87 new boats to be built were transferred to their owners. By this program fishermen will get motor fishing boats and other fishing equipment financed by credits that would subsequently be repaid. This program is being financed by NT$4 million (US$388,000) in United States aid, together with Formosan Government funds amounting to NT$1.9 million (US$184,000) and US$100,000.

NOTE: Also see Commercial Fisheries Review. November 1953, p. 41.

France

FISHING FLEET: Of the 55,000 French fishermen, 92 percent work on wooden craft and 8 percent on steel vessels, reports a December 3, 1953, U. S. Embassy dispatch from Paris.

In terms of monetary returns, however, the wooden vessels produce only 51 percent of the value of the total catch. But, in terms of quantity produced, wooden vessels account for only 47 percent of the total catch. The capital invested and the total tonnage are about the same in both fleets.

The main reasons given for the decline of activity of the wooden vessels are: (a) the decline of the fish supply in coastal waters which form the limited operating area of the wooden vessels; (b) the fact that the majority of the wooden vessels are equipped for one seasonal type of fishing only.

While no general program for the wooden fleet is available, some financial assistance is to be allocated for the renovation of the wooden fleet from the modernization and equipment fund.

Steel Boats: In 1953 the French fishing fleet was comprised of 338 steel trawlers, of which 158 were new vessels, 60 less than 20 years old, 100 between 20 and 30 years old, and 20 more than 30 years old.

The design of the 158 new trawlers is standardized, and for that reason they were built at a relatively low cost. The production potentiality of these new units is 25 percent higher than the older vessels.

For the past two years trawlers fishing for herring have been equipped with electronic equipment which enable them not only to detect the shoals but to locate them in depth with precision. It is estimated that this equipment increases the volume of the catch by 30 percent.

A program prepared by the Commissariat au Plan (Monnet Plan) for the replacement of 30 percent of the existing trawlers over 20 years old would allow ship owners to obtain loans at favorable rates from national credit agencies. The program was approved on May 4, 1953, by the Special Commission for the Fishing Fleet which had been appointed specially to study the program. The necessary funds will probably be allocated under the Modernization and Equipment Fund of the Ministry of Agriculture.

Pending the replacement of the old steam-driven vessels, the French Government up to January 1, 1953, had refunded 1,000 francs (US$2.90), and later 1,500 francs (US$4.30), on every metric ton of coal used for fishing operations. The average price of the coal was 7,000 to 8,000 francs (US$20.00-22.85) per metric ton. In spite of this subsidy, 60 coal-operated trawlers were taken out of commission.

Wooden Vessels: Of the prewar wooden vessels, 20 percent also have been replaced. Only 23 percent of the wooden vessels were more than 20 years old, compared with 36 percent in the case of steel vessels. In 1952 there were some 16,000 wooden vessels, compared with 21,000 in 1938. The older vessels are generally small so that if craft of under 20 tons are not taken into consideration the proportion of 20-year old and over wooden vessels is only 20 percent.

In contrast with what has been done for the steel fishing fleet, no reconstruction program for the wooden fleet has been developed in spite of the fact that the State Secretary for Fisheries has issued standards and models for the building of wooden vessels.

The general trend may be summarized as follows: (a) sailing vessels are being replaced by motor craft; (b) small vessels are being replaced by larger ones; (c) ves-

sels that were specially fitted for one type of fishing are being replaced by those that operate all the year around, catching various species of fish.

MARKETING DEVELOPMENTS IN THE FISHERIES: Boulogne and Lorient are carrying out a market organization program and the necessary buildings and equipment are being completed, but other ports like Concarneau, Douarnenez, and Le Guilvinec are also in need of similar programs. Particular emphasis was given to cold-storage installations in the ports.

Fish are transported mainly by the French railroads. A private company called the STEF specializes in the transportation of iced refrigerator cars under the supervision of the French railroads. There are a limited number of iced refrigerator motor trucks, but there are practically no mechanically-refrigerated trucks or trailers.

Losses on the wholesale and retail levels are heavy because of the lack of proper equipment. These losses result in high retail prices.

It is believed that improved wholesale and retail equipment would result in a higher consumption of fish in France. The per-capita consumption of fishery products was estimated at 16.5 pounds in 1952 compared with 90 pounds in Norway, 35 pounds in Germany, and 50 pounds in the United Kingdom.

FISH CANNING INDUSTRIES: Out of a production of 369,000 metric tons of fish landed in France in 1952, it is estimated that some 80,000 tons were processed by the canning (51,000 tons product weight), salting, drying, and curing industries. The canning industry processed mainly tuna, sardines, and mackerel. In 1952 the number of canning plants was estimated at 230 with a total labor force of 20,000 workers, compared with 200 plants and 13,000 workers in 1938. Imports of canned fish have been increasing in the last few years, while exports have been decreasing. During the first half of 1953 imports of canned fish and crustaceans increased to 13,438 metric tons from 10,137 tons a year earlier, while exports decreased from 1,648 tons to 1,548 tons; as a result, net imports increased from 8,489 tons during the first half of 1952 to 11,890 during the first half of 1953.

The situation of the French canning industry is considered as serious, and some reorganization is taking place in order to achieve greater concentration and to improve equipment, including machinery for complete utilization of all byproducts.

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SARDINE CANNING INDUSTRY: More than 150 canneries along the coast of France can about 900,000 cases of sardines annually. These, situated near fishing ports, employ about 500 men and 13,500 women. About 20,000 fishermen are engaged in fishing sardines for these canneries, the November 1953 issue of Conservas de Peixe states.

Greenland

FISHERIES AFFECTED BY REVISED TRADE REGULATIONS: Certain changes were made in Greenland's trade regulations under Decree No. 292 of November 11, 1953, issued by the Greenland Department of the Danish Prime Minister's office. The new decree results from improved supervisory and administrative methods that have come about with the development of Greenland in recent years, reports a December 1 U. S. Embassy dispatch from Copenhagen.

The more important amendments affecting Greenland's fisheries are as follows:

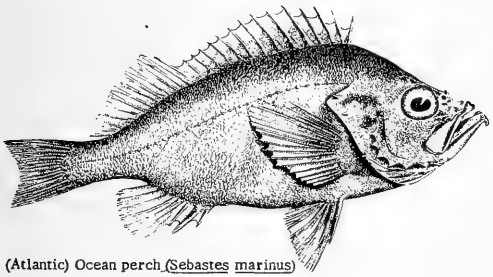
(1) Prohibits trawling in Greenland's territorial waters, except for shrimp, herring, and "angmagssat" (dwarf herring used as bait for line fishing).

(2) The extension of the licensing requirement to other than resident Danish nationals shall in the future also apply to the land territory with respect to trapping and hunting, and to reloading of fish, and storage thereof in Greenland territorial waters and land territory, respectively. This extension of the licensing requirements does not curtail the rights already accorded to Danish, Icelandic, and other foreign vessels with respect to navigation in East Greenlandic waters, by virtue of Royal Announcement of July 5, 1924.

(3) Imposes a fee on fish catches licensed under (2) for reloading and storage, which fee shall be due the Greenland Price Regulation and Trade Conditions Adjustment Fund, in case the fish are not sold through the central Greenland sales organization (at present: The Royal Greenland Commerce).

Iceland

TRAWLERS DEVELOP RICH OCEAN PERCH FISHERY OFF GREENLAND: An unusually rich ocean perch fishery has been developed in West Greenland by Icelandic trawlers and record catches have been made, according to a review of Icelandic newspaper items carried in the November 26 Fiskets Gang, a Norwegian fishery periodical. A number of fishing vessels have gone to West Greenland to fish for ocean perch, which will be filleted and shipped to the Russian market in accordance with provisions of the Russian-Icelandic trade agreements.



(Atlantic) Ocean perch (Sebastes marinus)

The new rich ocean perch banks were discovered west of Cape Farewell outside of Eystribgdi. The trawler Uranus of Reykjavik was the first to fish in that area. It landed a catch of about 132,000 pounds of ocean perch which, upon examination, were found to be of the same quality as the Icelandic ocean perch. The trawler then made two additional trips and landed 1,320,000 pounds in 24 days. It was reported that a number of other trawlers had visited the new banks and had obtained full fares in a short time. It was also reported that the bottom of the banks was bad, and that gear "hung up" and wore out rapidly.

India

NORWAY AIDS FISHERIES: A new type of marine research vessel, built in Norway, is on its way to India as part of the efforts made by the Kr. 20 million (US$2.8 million) Norwegian India Aid Fund to develop fisheries in the State of Travancore-Cochin, the Norwegian Information Service reported on December 17, 1953. Made of aluminum, the flat-bottomed 90-foot cruiser features a specially designed propeller-well protected by two sturdy runners. Thus, the vessel can be safely launched or landed on a sandy shore, even in heavy breakers.

Equipped with radiotelephone, echo depth sounder, and windlass, the research vessel will be used to take soundings and samples of the sea bottom, and test various types of fishing gear.

Successful trial runs with two Indian fishing canoes rebuilt and equipped with engines in Norway are reported. The Norwegian India Fund is donating engines for 100 fishing canoes to the Travancore Fishermen's Cooperative. The engines will be installed at a local workshop being built by the India Aid Fund. A specially designed 60-foot fishing vessel is also being tested off the Travancore coast under the supervision of Norwegian fisheries specialists.

Japan

ANCHORAGE SOUGHT FOR TUNA VESSELS IN U. S. TRUST TERRITORIES: A request for permission to use as an anchorage for about 20 fishing boats and 3 refrigerated transport ships some harbor or shelter to be designated by the United States authorities in the U. S. Trust Territories south of Lat. 10° N. was made recently by the Japanese Government for a Japanese fishing firm. The operations would last about six months.

The purpose is to transship catches from the fishing boats to the refrigerated transport vessels in the harbor or shelter; and to provide necessary supplies and provisions from the transport vessels to the fishing boats.

The petition states that if the request is granted the following will be strictly observed:

a. No personnel will be landed.

b. No fishing will be conducted in the territorial waters of the U. S. Trust Territories.

c. No contact or exchange of goods will be made with foreigners.

A report indicates that if the request should be granted it would permit an extension of the Japanese tuna and bonito fisheries outside the overfished Japanese coastal waters by allowing fleets of small-sized (100 tons of less) fishing craft to transship their catches to refrigerator ships in the fishing area, thus obviating the need for return to Japan.

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JAPANESE VESSELS TO FISH FOR AMERICAN SAMOA TUNA CANNERY: A Tokyo fishery firm has signed a contract to sell fish to the U. S. firm that has leased the American Samoa cannery, the Japanese press reports (Nippon Suisan Shimbun, December 14). The Tokyo firm sent seven tuna boats of the 120-ton class to Samoan waters to fish for tuna. The vessels were scheduled to sail from Tokyo on December 15, 1953. Because of the terms on which the U. S. firm has chartered the mothership, the operation is scheduled to continue until the end of March 1954.

An editorial in the December 10 Nippon Suisan Shimbun commented on the situation as follows:

"Japanese tuna boats are now to fish in the waters around the Samoa Islands. The value of the fishing grounds of that area was established by Japanese fishing boats before the war, but since the war it has been practically impossible for them to operate there because of supply problems associated with the lack of bases. Now, however, the sale of fish to the cannery in Samoa has been arranged and the catch is to be turned over to a freezership belonging to the canner, which will at the same time

supply necessary materials thus making fishing in the area possible. Of course, large tuna boats would be able to operate independently, but in the present case the fact that medium and small tuna boats have been enabled to operate there is of deep significance from the point of view of the present condition of Japan's fisheries....

"The fisheries authorities have set up their policies for the conversion of fisheries with emphasis on the southern fishing grounds and as an emergency measure they have decided to divert about 100 mackerel fishing boats and other vessels which have been closed out of their grounds by the Rhee Line into the southern tuna fishery. However, there is a limit to the southern tuna grounds and particularly if it comes to the diversion of medium and small sized fishing vessels it may well be that these tuna grounds will reach the saturation point in the near future. In this sense it is to be hoped that one further step forward will be taken and that bases may be established in the South Sea Islands, and although the present fishing venture in Samoan waters is not a pure land-based operation, it is in general accordance with this hope. At the same time, for better or worse, it must be said to be a fine thing for the future of the southern tuna fishery that this way has been opened to it. The present plan, being the first such operation, involves only 7 fishing boats, but if the plan progresses as scheduled it may be anticipated that the number of boats will be increased and therefore it is to be hoped that the persons involved will advance this first venture with a very serious attitude...."

NOTE: See Commercial Fisheries Review, January 1954, pp. 43-4.

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FISHERMEN OBJECT TO LARGE EXPERIMENTAL VESSEL ON SOUTH SEA TUNA GROUNDS: The Japanese national organization of tuna fishermen has objected to the Chiba Prefecture's plan to use the 405-ton experimental vessel Boso Maru on the South Sea tuna grounds, reports the Japanese press (Nippon Suisan Shimbun, December 14). The organization claims that the operation of such a large vessel for this purpose is unfair to private enterprise. It is believed that the vessel's request for an operating license may be granted with some restrictions attached. The license is to be issued by the Japanese Fisheries Agency. The Chiba Prefecture's Fisheries Department feels that if the vessel's operations are limited it will hinder the original plans. The vessel was scheduled to sail on December 14, 1953.

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NORTH PACIFIC SALMON FISHING TO BE EXPANDED IN 1954: The Japanese Fisheries Agency has been carrying on discussions concerning the scale of the 1954 North Pacific mothership-type salmon fishery, reports the Japanese press (Nippon Suisan Shimbun, November 19, 1953). Based on the experience and research of the past two years, it was announced on November 16, 1953, that the fishery will be opened to 160 vessels which meet the qualifications.

The Fisheries Agency further announced:

"From the experimental operations carried on over the past two years, there are prospects of being able to carry on more or less regular fishing in the North Pacific area from 1954 on. As a result of our examination of the research and fishing done up to this year (1953), taking into consideration the capacity of the fishing grounds, and in order to assure the healthy development of this fishery, we have made the following decisions concerning next year's operations:

"1. Grounds to be fished: Area bounded by 48° N. 154°30' E., 48° N. 175° W., 55° N. 175° W., 55° N. 170° E., 54° N. 170° E., 54° N. 162°30' E.

"2. Number of fishing vessels - 160 (83 vessels operated in 1953).

"3. Qualifications of vessels: (a) 50-80 tons (in principle none built before 1944); (b) Diesel engine (with prescribed equipment); (c) Radio installation (reserve power source, break-in relay system); (d) Radio direction finder; and (e) Speed better than 7 knots.

"4. Selection of vessels: The vessels will be selected from among the medium-sized trawlers of Hokkaido and the 11 prefectures north of Chiba and Ishikawa, which have a long history of participation in the fishery and which have a high degree of reliability as regards their ability to convert and prepare for the operation."

It is believed that there will be five fleets; three fleets will be conposed of 40 vessels each, and the remaining two fleets of 20 vessels each. Ten companies were planning to try to enter their motherships in the fishery.

According to Nippon Suisan Shimbun, November 23, the Government's policy in selecting vessels to participate in the salmon fishery will be to give priority to vessels abandoning trawling, thus using the attractions of the salmon fishery as an inducement to reduce the excessively large fleet of medium trawlers. The same source states that it is anticipated that about 10 research vessels will take part in the salmon fishing, although this was not definite.

Republic of Korea

SEAWEED INDUSTRY, 1952: Production: The total production of all types of sea weed in the Republic of Korea (South Korea) during 1952 amounted to 18,283 metric tons (table 1), reports a November 24 U. S. Embassy dispatch from Seoul. This is almost three times the 1948 production of 6,446 tons. Seaweed are produced all along the South Korean coast and as far north as the 38th parallel.

Table 1 - Republic of Korea Production of Algae by Types, 1948-52

Type	1952	1951	1950	1949	1948
	(Metric Tons)				
Glue seaweed	221	590	69	446	185
Tangle	523	-	25	-	2
Kaver (wild)	148	445	347	60	-
Dulse	2,042	2,472	2,134	2,161	3,166
Gulfweed	871	4,161	8,475	70	-
Celanum	35	87	34	-	20
Gelidium	2,856	920	603	2,272	1,240
Cami vrioder	3,911	2,789	672	682	443
Laver	973	404	800	592	895
Codium	17	115	69	-	-
Fusiforme	321	1,694	2,002	253	169
Green laver	531	518	611	341	117
Weeds	5,834	5,115	4,472	2,233	209
Total	18,283	19,310	20,313	9,110	6,446

Table 2 - Republic of Korea Exports of Agar Agar, 1948-52

Year	Destination	Quantity
		Metric Tons
1952	Hong Kong	290
1951	Japan & Hong Kong	210
1950	Japan & Hong Kong	185
1949	Hong Kong	97
1948	Hong Kong	199

Except for agar-agar, no statistical data are available on products obtained by extraction from seaweed. A paste used extensively by the Korean textile industry is made from glue seaweed, but no record of the amount produced is available. There are about 33 agar-agar factories in South Korea.

Agar-agar Exports: Total exports of agar-agar from the Republic of Korea in 1952 (table 2) amounted to 290 metric tons, all of which went to Hong Kong. All agar-agar exported is shipped to either Hong Kong or Japan. In the spring of 1953, a 60 kilogram (132 pound) bale of agar-agar was worth US$150 on the Hong Kong market. At the end of November 1953 there were no stocks of agar-agar on hand in the Republic of Korea.

Laver is also an important export item, approximately 2 million bundles of 200 grams (7 ounces) each are exported annually to Japan.

Mexico

INDUSTRY SEEKS TO REVOKE EXPORT TAXES: Pressure for the revocation of existing export taxes is mounting in Mexico, a November 19 U. S. Embassy dispatch from Mexico declares. The Confederation of Industrial Chambers declared in mid-November that Mexico will have to increase its exports by one-third over the level of two years ago to compensate for increases in the price of imported goods. The Monterrey Chamber of Manufacturing Industries concurred in this view and stated that taxes on exports should apply only to products the domestic production of which is insufficient for internal demand.

In a speech by the Sub-Secretary of Finance, the Mexican Government officially took recognition of some of these demands. He stated that the Government was considering a project with respect to the existing export tax on fishery products which would involve a return of 50 percent of the receipts of the tax to the National Bank for Cooperative Development for loans to fishing cooperatives to buy fishing equipment. These loans would be designed to increase the flow of fresh fish to city markets.

Despite the fact that the Mexican coastline is one of the most productive fishing areas in the world, fish is a very minor item in the Mexican diet which is very deficient in animal protein. Refrigeration facilities to transport the fish catch from the coasts to inland markets will have to be improved to bring any large quantity of fish to big city consumers.

The pressure for the revocation of reduction of existing export taxes may be expected to continue to mount. The Minister of Finance earlier in the year rejected the appeal of the cotton industry for a revocation of the export tax on that crop. Export taxes provided about 15 percent of total Federal Governmental income in 1952 and without alternative sources of revenue the Government can be expected to remain dubious of any proposals to revoke these levies.

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CLOSED SPINY LOBSTER SEASON: The closed spiny lobster season in Mexican waters is from March 15 to September 30, reports a U. S. Embassy dispatch from Mexico City dated December 30, 1953. These dates for the closed lobster season have been in effect since September 20, 1951; prior to that date the closed season extended from March 16 to October 15.

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IMPORT DUTIES ON FISHING NETS INCREASED: The Mexican import duties on fishing nets were substantially increased on November 21, 1953, by an announcement published in the Diario Oficial of November 13, 1953. The new and old rates follow:

Item No.	Item	New Rates 1/			Old Rates 1/		
		Pesos Per Kilo	Equivalent in U. S. Cents Per Lb.	Ad Valorem %	Pesos Per Kilo	Equivalent in U. S. Cents Per Lb.	Ad Valorem %
5.70.31	Nets of all kinds for fishing	5.00	26	10	.50	2-1/2	10

1/Combination rate: specific duty plus ad-valorem surtax.

EXPORT SURTAX ON SHARK FINS AND MARINE ALGAE REDUCED: The 15-percent ad-valorem export surtax on shark fins and marine algae has been reduced by 80 percent, the November 13, 1953, Diario Oficial reported. The new surtax is 3 percent.

Norway

CONSUMPTION OF FISHERY PRODUCTS, 1952/53: The large consumption of fishery products in Norway has compensated for the deficit in meat and other animal proteins, reports a November 23 U. S. Embassy dispatch from Oslo. The per-capita consumption of fish has gone down steadily, however, since the end of World War II (see table) as supplies of meat, etc. improved. Domestic disappearance is now about at the prewar level. In contrast to the decline in the utilization of fresh fish, there has been a real development and interest in frozen fish fillets, which are presented in attractive packages and are easy for the housewife to prepare. Consumption of these fillets was estimated at 500 metric tons for the calendar year 1952--a big increase over 1951. For the first seven months of 1953 the consumption of frozen fish fillets was over 1,000 tons.

Norwegian Annual Per-Capita Consumption of Edible Fishery Products

Year 1/	Lbs.	Year	Lbs.
1952/53 2/	89	1949/50	108
1951/52	90	1948/49	110
1950/51	107	1934-38 Average	91

1/April 1 to March 31.
2/Preliminary.

A total of 2.6 percent of the Norwegian calorie requirements is covered by fish. This figure has remained fairly constant during the past year. There is a great variety of good quality fish available in Norway. Transportation difficulties, however, are present in supplying eastern and southern Norway (where most of the population live) with high-quality fish from the West Coast.

According to official data, stocks of frozen round fish and fillets on June 30, 1953, were 4,230 tons against 3,565 tons for the previous year. Klipfish stocks on that date were around 11,000 tons and were even greater in September and October. Canned fish stocks amounted to 19,736 tons, about the same as for June 30, 1952.

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FISHERIES TRADE FAIR 1954: The Norsk Fiskerimesse 1954 (The Norwegian Fisheries Trade Fair 1954) will be held in Aalesund, Norway, June 13 to 27, the Norwegian American Chamber of Commerce reports. Norwegian and foreign companies are invited to participate in this first special Norwegian trade show for all types of fishing gear and equipment of importance and interest to nations with a modern fishing fleet and industry. The show will be arranged as a sales fair where buyers and sellers have the opportunity to meet and establish contacts. The following main groups of commodities will be represented at the fair:

Fishing boats.

Motors and machinery for the fishing fleet.

Equipment for fishing boats--winches, anchors, wires, blocks, electronic devices, etc.

Fishing tackle.

Clothing for fishermen.

Processing machinery and equipment.

Sport-fishing gear.

The Norwegian fishing industry has contributed Kr. 250,000 (US$35,000) for a special section which will depict the history of fishing. There will also be a large aquarium containing the various kinds of fish caught off the Norwegian coast.

Further information about the Norwegian Fisheries Trade Fair 1954 may be obtained from: Norsk Fiskerimesse 1954, Aalesund, Norway.

Panama

FISHING LAW PROPOSED: A new over-all Panamanian fishing law was transmitted to the Panamanian National Assembly on November 25, 1953, by the Acting Minister of Agriculture, Commerce, and Industry. Simultaneously, the President of Panama sent to the Assembly a message requesting early and favorable consideration of the bill.

Aims of the Bill: The bill purports to do a number of things. It seeks to codify into one measure and to modernize all Panamanian legislation dealing with the nation's fisheries and marine wealth; to extend the nation's territorial waters outward to the edge of the continental platform and to claim for the nation all the marine wealth and resources contained therein; to promote the use of these resources on an intelligent basis from the standpoint both of present exploitation and future conservation; to monopolize these resources for the most part for the benefit of Panama and the Panamanians; and to increase governmental revenues accruing from current exploitation of these resources. The thought of possible tideland oil doubtless also was in the minds of the authors.

Would Extend Panamanian Territorial Waters: Perhaps the most important single provision of the measure from the international standpoint is that contained in Articles 1 and 2, which seeks in the following words to extend Panamanian Jurisdiction and control outward to the edge of the continental shelf:

> Article 1. The State exercises its sovereignty over the continental and insular territorial waters, over the lakes, lagoons and river systems and the resources thereof, and its jurisdiction and control over the waters that cover the submarine continental and insular shelf and the types and species of marine flora and fauna existent therein.
>
> Article 2. For the purposes of maritime and river fishing and hunting, territorial and jurisdictional waters shall be understood to mean those defined by the law developing Article 209 of the existing National Constitution.

These articles seem to be aimed at implementing Article 209 of the present Panamanian Constitution. According to the Panamanian Secretary of Commerce, these articles were based on related United States policy as laid down in the policy paper: "Resources of the Subsoil and the Sea Bed of the Continental Shelf."

In early October 1953 another bill relating to the extension of Panamanian territorial waters was introduced into the National Assembly. This bill was discussed in the Assembly Committee.

Restricts Commercial Fishing Privileges: Other portions of the bill (Articles 5-7, inclusive) taken together are important in that they would place rather strict limitations on the individuals, firms, and/or vessels that can fish commercially in Panamanian jurisdictional waters extending outward to the continental shelf. Article 5 states that Government permits (permisos) will be required for those fishing in Panamanian waters. Superimposed on this is another requirement contained in

Article 6 apparently to the effect that these permits will be denied to all vessels except those registered under the Panamanian flag or sea-going vessels "of foreign nationality" engaged in tuna bait fishing. Further superimposed on the two above requirements in a way that complicates the picture is a third one contained in Article 7 which states:

> "With the object of promoting the building of vessels in national shipyards, no second-class license for fishing from vessels of foreign construction, an indispensable requirement for such activities, shall be issued in the Ministry of Agriculture, Commerce, and Industries after the entry into force of this law."

The idea of Article 7 seems to be, according to a fisheries specialist of the Ministry of Agriculture, Commerce and Industries, that after the effective date of this proposed law these second-class commercial licenses, which are normally available only to Panama and United States citizens, will not be granted to any foreign-built vessel. The understanding and belief is, however, that these licenses will not be denied to such vessels heretofore engaged in commercial fishing in Panamanian waters.

Bait-Fishing Regulations Remain Essentially Same: The proposed bill apparently involves little or no change in existing bait-fishing regulations (as contained mainly in Decrees No. 148 of June 12, 1953, and No. 30 of December 22, 1952), except that:

(1) The extension of Panamanian jurisdiction to the edge of the continental shelf would at least theoretically result in the regulation and control of bait fishing that far out to sea;

(2) All repairs to bait-fishing vessels in the future would have to be done in Panamanian repair shops, where under present regulations only "small repairs" have to be done there; and except, finally, that

(3) Penalties for bait fishing without the required Panamanian license would be increased sharply--even to the point of providing for the confiscation of an offending vessel under certain circumstances.

Would Cancel Previous Fishing Legislation: The bill proposes to cancel all present important fisheries legislation, for example, such as the above-mentioned bait-fishing decrees and Decree No. 172 of August 5, 1953.

Portugal

LARGE TUNA CATCHES OFF AZORES: Two Portuguese tuna vessels (Rio-Vouga and Rio-Agueda) made such large catches of albacore tuna off the Azores in the summer of 1953 that a considerable drop in price resulted, and it was expected that new markets would be sought in Portugal. Albacore tuna are reported to be abundant in these latitudes, states the November 1953 World Fishing, a British trade magazine.

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FISHERIES REVIEW: Fresh Fish, 1953: The total estimated production of fresh fish for human consumption (excluding fish for salt cod) in Portugal during 1953 was 200,000 metric tons (table 1) as compared with 193,681 metric tons produced in 1952, reports a November 24 U. S. Embassy dispatch from Lisbon. It

Table 1 - Portuguese Fresh Fish Industry, January-December 1952 and 1953		
Item	1953 1/	1952
	Metric Tons	Metric Tons
Stocks on hand January 1	400	400
Production (for human consumption only and excluding fish for salt cod)	200,000	193,681
Imports	-	-
Total Supply Available	200,400	194,081
Consumed as fresh fish	160,000	155,541
Canned or otherwise preserved	40,000	38,140
Exports 2/	-	-
Total Disappearance	200,000	193,681
Stocks on hand December 31	400	400

1/1953 data partly estimated.
2/ About 90 percent of the fish canned or othewise preserved is exported, but data not available.
NOTE: Data are for continental Portugal only and do not include Azores or Madeira.

Table 2 - Portuguese Dry Salt Cod Fishery, 1952/53 and Estimates for 1953/54		
Item	1952/53 1/	1953/54 1/
	Metric Tons	Metric Tons
Stocks on hand July 1	3,000	3,000
Production	37,096	38,000
Imports	14,743	16,000
Total Supply Available	54,839	57,000
Total Consumption	51,839	54,000
Stocks on hand June 30	3,000	3,000

1/July 1 to June 30.
NOTE: Data are for continental Portugal only and do not include Azores or Madeira.

was estimated that 160,000 metric tons were consumed as fresh fish, while 40,000 tons were canned or otherwise preserved. About 90 percent of the canned or preserved fish was exported.

Salt Cod, 1952/53: Portuguese production of salted cod during July 1, 1952, and June 30, 1953, amounted to 37,096 metric tons (table 2), while imports of salted cod totaled 14,743 tons. No salted cod is exported from Portugal. Estimates for the 1953/54 season total about the same as for the 1952/53 period.

Spain

FISH CANNING TRENDS, OCTOBER 1953: Fish canning operations in the Vigo district of Spain continued to show a substantial improvement during October 1953. This was due to the abundance of anchovies. Canners showed an increasing interest in anchovies since they represented practically the only product with a good export demand in the dollar areas where there is no competition from the Portuguese canners. The Portuguese canners are favored by lower operating costs, available materials, and better exchange rates, and have all but forced Spanish canners out of their former markets. Alcrique (needlefish) and jurel (tracharus tracharus), which have a good domestic market, were also abundant. Purchases of fresh fish by the canners in the Vigo area during the month totaled 2,838 metric tons (the largest volume to date in 1953). This compares with 1,326 metric tons in September and 1,384 in October 1952.

Because of restricted exports due to high prices, canners have not yet utilized all the stocks of tin plate acquired under the U. S. loan to Spain in December 1951. The Union de Fabricantes de Conservas de Galicia submitted a petition to the Comision Interministerial Coordinadora during October for an allotment of US$2 million from economic aid to be given to Spain under the recent agreement for the purchase of tin plate. They believed that stocks might be exhausted before the industry is in a position to place orders abroad to be paid for with foreign currency acquired through exports.

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FISH MEAL AND OIL PRODUCTION IN 1952 BELOW DOMESTIC REQUIREMENTS: Spain's fish byproducts industry, still in the first stages of development, produced 1,690 short tons of fish oil and 5,300 tons of fish meal in 1952--less than half the domestic requirements, reports the U. S. consulate at Vigo. Data for 1951 are not available while figures for 1953 apparently have not yet been published by the National Statistical Institute, Madrid.

The larger part of the Spanish fish-oil production is used to supplement the national production of linseed oil which is insufficient for the requirements of the paint and varnish industry. A small percentage of the best deodorized oils is also used by the soap industry.

The use of fish meal in animal feed and as fertilizer is relatively new in Spain. Although the demand is reported to be increasing, the high price resulting from the small quantity produced makes its use by the small farmer practically prohibitive.

According to available information there are at present in Spain about 50 fishery byproducts plants employing some 600 persons. These plants are located principally in the northern and northwestern areas and in the Canary Islands. As their combined production is below domestic needs, exportation of fishery byproducts is not permitted. The demand for them in Spain is reported to be gradually increasing, but it is doubted there will be any important change in the development of the industry for some years because of the economic and exchange situation. The larger part of the plants are said to be equipped with Norwegian machinery.

Surinam

U. S. TECHNICAL AID FOR FISHERIES: A program of technical cooperation for Surinam was to be discussed when a group of United States technicians arrived in Surinam in January 1954. The survey group was sent to Surinam in response to a request from the Surinam Government which was transmitted to the U. S. Foreign Operations Administration (FOA) by the Netherlands Government, reports a December 23, 1953, release from FOA. The suggested cooperation program may involve projects in the fields of fisheries, agriculture, forestry, vocational and agricultural training, housing, internal transportation and distribution, and public health.

The group will also visit British Guiana, but has no plans to include a fisheries project for that country.

Sweden

CONSUMPTION OF FISHERY PRODUCTS: The total Swedish catch of fishery products during the year ending August 31, 1953, amounted to 205,500 metric tons, a U. S. Embassy dispatch from Stockholm (November 19, 1953) reports. The salt-water catch totaled 166,400 metric tons landed in Sweden and 26,100 metric tons landed in foreign ports; the total fresh-water catch was estimated at 13,000 metric tons. In addition, fish caught for byproducts totaled about 20,000 tons. Production for the following year is estimated at about the same level.

Consumption of fishery products in Sweden totaled 112,000 metric tons in the twelve-month period ending August 31, 1953. Of this, 82,000 tons was consumed fresh, 16,000 tons canned, and 14,000 tons salted. Consumption during the next year--ending August 31, 1954--is estimated at 115,000 metric tons.

United Kingdom

TO BUILD TRAWLERS FOR RUSSIA: British firms will be permitted to accept contracts for the building of fishing trawlers for Russia, according to an announcement made in the British House of Commons the latter part of November 1953. A total of 30 trawlers and 5 factoryships are involved, reports the November 28 issue of The Fishing News, a British fishery periodical.

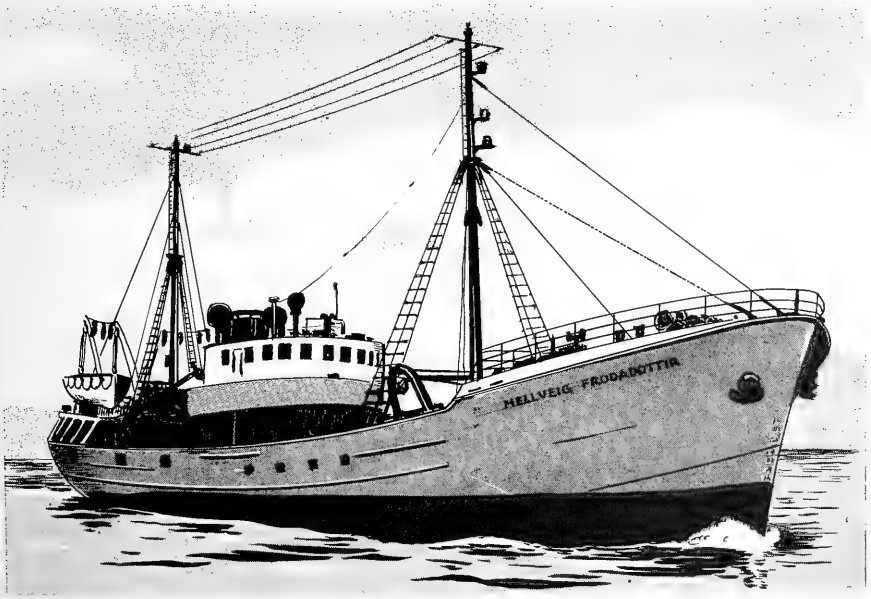
Launching of these vessels will be at Lowestoft. The Russians are understood to be eager for deliveries.

The proposed factoryships, it can fairly be assumed, will benefit by the designs of D. B. Cunningham who planned the predecessor of the Fairtry and is acknowledged to be a leading designer of factory vessels.

It is understood that the contract will involve about £10 million (US$ 28 million).

* * * * *

MORE ICELANDIC TRAWLERS LAND AT GRIMSBY: Icelandic-caught cod was offered to Grimsby fish merchants at a fixed price of 55s. per kit of 10 stones ($5\frac{1}{2}$ U. S. cents per pound), reports the November 21, 1953, issue of Fish Trades Gazette, a British fishery magazine. This price is scheduled to remain in effect until April 1954. Only one merchant took advantage of the offer. Other dealers refused to bid on the fish; and a recent mail ballot among the dealers revealed they continue to endorse the ban on Icelandic-caught fish.



One of a number of trawlers built in Britain for Iceland in 1948-49. Has several outstanding features including aluminum fish hold.

The resumption of fish landings at British ports is the result of an agreement between the Union of Icelandic Trawler Owners and a London businessman who has obtained an exclusive concession to handle Icelandic fish landings in British ports.

The fifth Icelandic trawler to land at Grimsby since the ban unloaded a catch of 476,000 pounds, mostly cod, on November 19. The entire cargo went directly to the London businessman's plant at Pyewipe. A sixth trawler's catch of 364,000 pounds was unloaded and handled the same way.

It was announced that there would be seven Icelandic trawlers landing at Grimsby each week. Cod has comprised practically the entire catch thus far, but it is expected that future landings will contain a greater share of haddock and plaice.

* * * * *

FURTHER DETAILS ON "HERRING-TO-SALMON" PROCESS: Further details on the processing of herring to resemble canned salmon in taste, smell, and appearance were reported recently from London. It appears that the process consists of "mixing bones, cooked herring, and other fish; adding salts, spices, a coloring matter, and emulsifying salts." The product is sold under the name of "Samoc" and production has been on a limited scale thus far. The product has been tested and found quite acceptable for sandwiches. Demand for the product is uncertain. It is not expected that it will become a serious competitor of canned salmon.

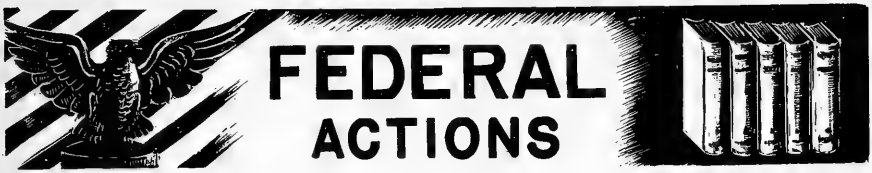
NOTE: Also see Commercial Fisheries Review, September 1953, p. 38.

LARGE STURGEON LANDED AT BOSTON

A sturgeon (Acipenser sturio Linnaeus), measuring 9 feet 1 inch and weighing 374 pounds, was landed at the Boston Fish Pier recently by the large otter trawler Phantom 35 miles off Cape Breton, N. S. Although it is not uncommon for sturgeon to grow to this size, landings of this species are rare at Boston today. This specimen has been frozen and will be used as a display at various New England supermarkets.

Sturgeon caught by trawler Phantom.

Specimens of sturgeon caught in North Atlantic waters off New England and Europe have been recorded as long as 18 feet. One fish taken near Helgoland in the North Sea measured between 11 and 12 feet and weighed 623 pounds.



Department of Commerce

BUREAU OF FOREIGN COMMERCE

NEW REGULATIONS PROPOSED FOR BRITISH TOKEN IMPORT PLAN: Proposed new regulations and procedures for operation of the British Token Import Plan in 1954 were announced on February 9 by the Bureau of Foreign Commerce. The new regulations were expected to go into effect about March 1. The only fishery commodity subject to the plan is canned lobster.

The British Token Import Plan, established with the United States in 1946, enables eligible United States manufacturers or their agents to export to the United Kingdom token shipments of specified commodities whose importation from dollar sources is generally prohibited by the British Government.

Under the new proposed regulations, the basic principle of the Plan would be maintained. However, changes would be made in the procedure for certification of eligibility and the conditions upon which quotas would be allotted.

The complete text of the new regulations was published in the Federal Register of March 4.

Department of Defense

FEES PROPOSED FOR PERMITS ISSUED BY ARMY CORPS OF ENGINEERS: The Secretary of the Army is considering a schedule of fees for the purpose of recovering the cost of issuing permits for work in navigable waters of the United States under the provisions of sections 9, 10, and 14 of the River and Harbor Act of March 3, 1899. This action is taken in compliance with the provisions of Title V of the Independent Offices Appropriation Act, 1952 (5 U.S.C. 140), providing for recovering to the extent possible the cost of Federal services rendered, including the issuance of various types of permits.

The proposed fee schedule follows:

Group	Classification	Estimated Cost of Work	Fee
1	Noncommercial structures or facilities for recreational craft; protective structures such as revetments, retaining walls, bulkheads, groins, jetties, including dredging and filling relating thereto; and dredging of channels, slips, berthing areas, with dumping in designated disposal areas.	Under $5,000	$ 25.00
		$5,000-$25,000	75.00
		Over $25,000	150.00

Group	Classification	Estimated Cost of Work	Fee
2	Commercial structures used in water-borne commerce and navigation including piers, wharves, landing bulkheads, and related structures or work.	Under $25,000 $25,000 and over	$ 75.00 150.00
3	Structures not used in water-borne commerce and navigation such as oil wells, water intakes, sewer outfalls, and related structures; and dredging for commercial shell, sand, and gravel.	Under $25,000 $25,000 and over	100.00 175.00
4	Dumping of materials in designated disposal areas or at sea.	Per dumper trip	20.00
5	Fish traps and pounds.	Gill nets Traps and pounds	25.00 50.00
6	Bridges, dams, and tunnels.	Under $50,000 $50,000-$500,000 Over $500,000	100.00 300.00 500.00
7	Revised plans and extensions of time.	50% of original fee (maximum)	100.00

This notice was published in the Federal Register on January 29, 1954, and an amendment thereto was published in the Federal Register on February 6, 1954.

Foreign Operations Administration

GREECE AUTHORIZED TO PURCHASE CANNED FISH: Greece has been authorized by the Foreign Operations Administration to spend $150,000 for the purchase of canned sardines, herring, pilchards, mackerel, and/or squid, a February 4 bulletin from that Agency states. The contract period covering this purchase is from February 2, 1954, to June 30, 1954. The terminal delivery date is August 31, 1954. Greece is authorized to make these FOA-financed purchases in the United States and possessions.

Department of Health, Education, and Welfare

FOOD AND DRUG ADMINISTRATION

PACIFIC OYSTER STANDARDS AMENDED: The Secretary of Health, Education, and Welfare on January 6, 1954, promulgated an order that amended the definitions and standards of identity for Pacific oysters. The amendments were made on the basis of substantial evidence received at the public hearing held late in 1953. The new regulations which appeared in the January 13, 1954, Federal Register are the same as the proposals published in Commercial Fisheries Review, January 1954, p. 42.

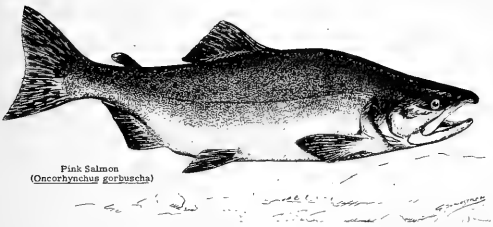
This order shall become effective on the ninetieth day following January 13, the date of publication of this order in the Federal Register.

Department of the Interior

FISH AND WILDLIFE SERVICE

ALASKA COMMERCIAL FISHING REGULATIONS FOR 1954 ISSUED: Alaska salmon operators and fishermen have joined with the Department of the Interior in unprecedented conservation measures for 1954, designed to aid in restoring the pink salmon runs in Territorial waters, Secretary McKay announced February 19.

The measures include the closing of more than half the fish traps in southeast Alaska and a virtual halt for a two-year period in pink salmon fishing in Prince William Sound. Bristol Bay operators, fishing for red salmon, have voluntarily curtailed the amount of gear to be used in 1954. A quota of 50,000 barrels, about half the annual take in recent years, is placed on the herring catch in southeastern Alaska. Use of mechanical drum seines is barred in the southeastern Territorial waters.



Pink Salmon
(Oncorhynchus gorbuscha)

The run of pink salmon in Alaska waters has been seriously depleted in recent years. Results of the 1953 season were among the poorest on record.

McKay lauded the Alaska fishermen and the operators for their voluntary participation in the 1954 salmon conservation program, despite the individual sacrifices that will be borne by many.

"The Department's interest is in a healthy fishing industry for Alaska," McKay said. "It is vital to the Territorial economy. It was plain after the 1953 season that drastic action would be necessary to reverse the downward trend of the salmon catch. The spirit of cooperation which has been shown by the Alaskans in meeting this situation augurs well for that future day when Alaskans assume sole responsibility for this important resource."

The Alaska commercial fishing regulations will become effective 30 days after publication in the Federal Register of February 20, 1954.

Southeastern Alaska purse seiners dramatically demonstrated their support of the new regulations by recommending closure of many of their best seining grounds. Trap operators in this same section agreed to the closure of 148 of the 266 trap sites held in 1953.

The herring fishery of Southeastern Alaska has been at low ebb for the last four years, producing only about 100,000 barrels in each of these years. A regulation against the taking of herring for any purpose other than bait was considered. Biological studies, however, indicated that the lack of herring was not due to overfishing but was related to survival of the various year-classes comprising the stocks of this area. The entering year-class in 1954 is expected to be larger than in any recent year.

To permit continuity in sampling operations, the 1954 regulations place a quota of 50,000 barrels on the take of herring. This is about half the annual take of recent years and only slightly more than last year's take for the bait fishery alone. This small quota will permit a safe operation and continued study until the herring stocks increase.

"As in the case of the pink salmon curtailments," Fish and Wildlife Service Director Farley said, "the herring operators and fishermen are cooperating admirably in the restoration effort upon which the new herring regulation is based."

Major changes in last year's regulations are as follows:

1. In Bristol Bay, the size of the fishing districts has been drastically reduced so that fishing within each district will be confined to local runs and thus can be more properly controlled by weir count. In addition, any migration of fishing boats from one district of Bristol Bay to another will require a 48-hour waiting period. This has been incorporated in the regulations in order to discourage indiscriminate migration from district to district. In addition, all fishing, except in Port Heiden, has been prohibited in the eastern portion of the Peninsula district on the approach routes of the runs to Bristol Bay.

2. In the Alaska Peninsula area, it has been necessary to close the eastern portion of the southside of the Peninsula because of the extremely poor condition of the pink salmon runs there.

3. In the Kodiak area, it has been possible to reduce the two-week midseason closed period to one week in anticipation of much improved runs of pinks.

4. In the Cook Inlet area, no changes of major importance have been made. Fishing will again be on the basis of two days per week.

The Fish and Wildlife Service has explored the possibility of reducing the effort in Cook Inlet to one-half in order to provide for a longer fishing week and better distribution to the spawning grounds. In attempting to implement this objective, however, no means of reducing the fishing effort equally among the various forms of gear could be found, and the matter was accordingly deferred for at least another year until it can be studied at greater length.

5. The pink salmon runs in Prince William Sound are in a very depleted condition and it is proposed by the Service to close fishing in that area for the next two years, except in the Eshamy section. The small red salmon run in that section is in good condition and since the catch is controlled by weir count, this district is left open.

6. In the Copper River area, a continuous season from May 1 to September 18 has been provided. This should help in small measure to compensate to Cordova fishermen for closure of the pink salmon fishery in Prince William Sound during the next two years.

7. In Southeastern Alaska the fishing effort will be reduced about 50 percent for a two-year period to rehabilitate the seriously depleted pink salmon runs in that area. During 1954, 148 of the 266 trap sites in the region will be closed, and the number of bays closed to purse-seine fishing will be greatly increased.

Seasons in this area have been adjusted to open and close earlier and extend over a longer period, permitting a greater take of early-run red and chum salmon and thus compensate the fishing industry in some degree for the closure of traps and seining grounds. At the same time, the Service will step up its stream-guard program so that catches sacrificed by the trap operators and seiners will not be lost to poachers.

8. It has been necessary for the Service to restrict the use of so-called "drum seines" in southeastern Alaska. Experience in British Columbia and Puget Sound indicates that the use of mechanical drums increase the effectiveness of purse-seine gear, particularly at times when salmon are relatively scarce, because of the greatly increased number of sets which may be made per day. It is believed that the use of drums should not be permitted while the pink salmon restoration program is under way.

Interstate Commerce Commission

LOWER FREIGHT RATES FOR CANNED GOODS: Railroads will be permitted to cut their rates on transcontinental carload shipments of canned goods by 10 cents per 100 pounds, effective February 4, 1954, the Interstate Commerce Commission announced recently. The reductions will apply to both east-bound and west-bound traffic moving between the Pacific and Atlantic coasts and intermediate points

Treasury Department

BUREAU OF CUSTOMS

CONTROLS ON U. S. IMPORTS OF CHINESE-TYPE FISHERY PRODUCTS: The United States and five other countries during the past year have worked out procedures to facilitate United States imports of more than 80 kinds of Chinese-type merchandise (including fishery products) certified as having been produced in those countries.

The new procedures supplant the individual license requirements for imports of these Chinese-type items which had been in effect for most areas as a necessary adjunct to the restrictive controls on imports of goods originating in Communist China and North Korea under the U. S. Treasury Department's Foreign Assets Control Regulations.

These control regulations were inaugurated by the Treasury Department in December 1950 under the Trading With the Enemy Act.

The regulations were brought into effect to prevent Communist China and North Korea from obtaining foreign exchange with which to further their aggression in Korea. They are an essential part of the U. S. program to control all economic relations with Communist China in order to deny Chinese communists access to U. S. supplies or assets in the United States.

Under the Foreign Assets Control Regulations licenses generally have been required for import of merchandise of Chinese-type even when the goods are alleged to have been produced in a country other than Communist China or North Korea.

There are two broad exceptions to this general rule. First, exceptions are made for Chinese-type goods imported directly from specified countries which in the past have been large suppliers of such goods to the United States. The other involves the certification procedure already mentioned.

Agar-agar is included in the list of Chinese-type merchandise subject to license if located in or transported from or through Hong Kong, Macao, or any country not in authorized trade territory. A U. S. import license, under section 500.204 of the regulations, is required.

The geography and trade pattern of some countries, principally those adjacent to the China mainland, have posed special problems in enforcement of types of controls stringent enough to accomplish the desired objectives and at the same time flexible enough to permit a flow of trade between friendly areas, such as the British Crown Colony of Hong Kong and the United States.

To facilitate import of goods actually the product of friendly countries principally affected by the control regulations, while at the same time preventing Communist

China goods from entering the United States, arrangements were concluded for issuance by the governments of these areas of certificates of origin which would permit importation into the United States of specified goods.

The certification procedure now is being operated by the Department of Commerce and Industry of the Government of Hong Kong, the Ministry of International Trade and Industry of the Government of Japan, the Ministry of Economic Affairs of the Government of China in Taiwan (Formosa), and the Ministry of Commerce and Industry of the Republic of Korea. A recent amendment extends the procedure to Western Germany, certification to be made by the Federal Ministry of Economics of that country. The procedure for the latter country relates to merchandise exported after November 20, 1953.

The certification procedure does not yet apply to all Chinese-type commodities produced in the specified areas and in demand in the United States.

Fishery commodities for which certifications by the governments of the specified countries may now be obtained and the dates, all in 1953, on which such certifications first became available are as follows:

From Hong Kong:

Oysters and oyster sauce, August 15; salt fish in oil, January 9; shrimp noodles, October 27; shrimp sauce and paste, August 15; shrimp slices, dried, October 27.

From Japan:

Abalone, canned or dried, August 25; cuttlefish, dried, August 25; fish, sea bream, canned and prepared, August 25; oysters, dried, August 25; sardines, dried, August 25; scallops, dried, August 25; seaweed, dried, August 25; shark fins, July 30.

In a further effort to assist importers, the Treasury Department has amended the import-control regulations by establishing a general license system, which authorizes the purchase, importation, and clearance through Customs of merchandise that has been properly certified to be not of Communist China origin by the appropriate governmental agencies of the countries covered by the certification procedure. Thus for goods properly certified the importer need not apply for specific import licenses, but he may present to collectors of customs properly issued certificates of origin. Collectors of customs have been notified of this provision.

To insure that their operations proceed smoothly under the general license provision, importers should present to collectors of customs original certificates of origin, not copies, which must specifically and fully describe the particular merchandise for which clearance through customs is sought.

Furthermore, a certificate must bear a statement by the issuing agency referring to the Foreign Assets Control Regulations and stating that it has been issued under procedures agreed upon with the United States Government.

No merchandise may be imported under a certificate of origin except that shipped direct or on a through bill of lading to the United States from the country issuing the certificate.

* * * * *

CUSTOMS COURT DECISION ON DUTY FOR FROZEN CUBAN FROG LEGS: A United States Customs Court decision on January 7, 1954, held that imported frozen frog legs from Cuba continue to be properly dutiable at 8 percent ad valorem under the provisions of paragraph 1558 of the Tariff Act of 1930, as modified by the exclu-

sive trade agreement with Cuba (T. D. 51819). This affirmation was the outcome of an appeal by a New York importer against the decision of the New York Collector of Customs to assess a duty of 8 percent ad valorem. The importer believed that frozen frog legs should be dutiable at $1\frac{1}{2}$ cents per pound as fish (fresh or frozen, filleted, etc.) under paragraph 717 (b) of the Tariff Act of 1930, as modified by GATT, (T. D. 51802) or at 3 cents per pound as game (other game, n.s.p.f.) under paragraph 704, as modified by GATT (T. D. 51802).

Eighty-Third Congress

(2nd Session)

FEBRUARY 1954

Listed below are public bills and resolutions introduced and referred to committees or passed by the Eighty-Third Congress (Second Session) and signed by the President that directly or indirectly affect the fisheries and allied industries. Public bills and resolutions are shown in this section only when introduced and, if passed, when signed by the President; but also shown are the more pertinent reports, hearings, or chamber actions on some of the bills shown in this section from month to month.

ALASKA STATEHOOD: Senate Committee on Interior and Insular Affairs on February 24 formally approved final language of a committee amendment (in the nature of a substitute) to the bill S. 50, and favorably reported this bill which provides for Alaska statehood. (S. Rept. 1028.)

A petition (No. 7) requesting the House to consider H.R. 2982, the Alaska statehood bill, is now at the Speaker's desk.

DISTRIBUTION OF FISHERY PRODUCTS: H. R. 7641 (Bates) - a bill to further encourage the distribution of fishery products, and for other purposes; introduced in the House on February 2 and referred to the Committee on Merchant Marine and Fisheries; similar to S. 2802, introduced in Senate January 22.

H. R. 7671 (O'Neil) - introduced in the House on February 2 and referred to the Committee on Merchant Marine and Fisheries; similar to H. R. 7641.

FAIR LABOR STANDARDS AMENDMENTS OF 1954: S. 2914 (Murray) - a bill to amend the Fair Labor Standards Act of 1938, as amended, and for other purposes; introduced in the Senate on February 8 and referred to the Committee on Labor and Public Welfare. This bill would increase the statutory minimum wage from 75¢ to $1.25 an hour; decrease the maximum work week from 40 to 37-1/2 hours during the first two years and then to 35 hours. The bill would also modify the blanket exemption of certain agricultural and seafood processing workers.

POINT 4 PROGRAM INVESTIGATION: S. Res. 214 (Mansfield) - a resolution calling for a full and complete study of the technical assistance and related programs authorized by Public Law 535, 81st Congress; introduced in the Senate on February 23 and referred to the Committee on Foreign Relations.

SHRIMP RESOURCES STUDY: Congressman Brooks of Louisiana on January 18 extended his remarks in the House by submitting a resolution passed by the Gulf States Marine Fisheries Commission in mid-January. This resolution asks that a thorough study be made of shrimp resources in the Gulf of Mexico. The Commission's resolution adopted at a special meeting held January 21-22 at Edgewater Park, Miss., as printed in the February 2 Congressional Record reads:

"Whereas the Gulf States Marine Fisheries Commission is deeply concerned about the future of the shrimp resources in the Gulf of Mexico and recognizes the need for a major shrimp-research program; and . . .

"Whereas the shrimp of the Gulf of Mexico is one of the most valuable fishery resources in America; and

"Whereas the number of vessels and men engaged in shrimp fisheries has vastly increased in recent years and the area of fishing has spread to far-distant grounds and although the catch has grown to an all-time high, the catch per unit of fishing effort has become reduced; and

"Whereas the distribution of the various kinds of shrimp in the Gulf of Mexico and the species composition of the catch have changed strikingly in recent years; and

"Whereas the member States are carrying out individual research programs which are inadequate; and

"Whereas the commission will serve as a coordinating agency for development of a major shrimp-research program in the Gulf of Mexico; and

"Whereas assistance of the United States Fish and Wildlife Service is desirable and necessary in the development of such a program; and

"Whereas the Gulf States Marine Fisheries Commission named a committee of scientists representing State and Federal conservation agencies and universities and requested them to draw up a plan of biological research on the shrimp resources of the Gulf of Mexico; and

"Whereas, according to such committee and in the opinion of the commission, there is needed over and above the sums available for such research in the member States $554,000, based on an estimate as follows:

"1. Establish useful and adequate statistics: Cost, $80,000 annually; length of time, permanent.

"2. Sampling the catch for size and species composition: Cost, $59,000 annually; length of time, permanent.

"3. Development of marking techniques: Cost, $50,000 annually; estimated length of time, 3 years.

"4. Differentiation of species and stocks at all ages: Cost, $50,000 annually; estimated length of time, 3 years.

"5. An ecological study, including the following: (a) Mechanisms which transport larvae into inside waters; (b) general ecology of nursery grounds; cost, $190,000 first year; $90,000 after first year; estimated length of time, 5 years.

"6. Maintain a record of man-made and natural changes in the physical environment: Cost, $35,000 annually; length of time, permanent.

"7. Purchase and maintain laboratory equipment: Cost, $40,000 annually.

"8. Administration and publication of results: Cost, $50,000 anually, length of time, permanent.

"Now, therefore, be it

"*Resolved by the commission*, That the United States Fish and Wildlife Service be

requested to join in such a program and make funds in the amount of $554,000 available as above set out; and be it

"*Resolved*, That the chairman of the commission appoint a committee composed of at least one marine biologist from each member State to coordinate this program and report to the commission the findings resulting therefrom in order that they might be published by it; and be it further

"*Resolved*, That the commission hereby pledges its help and support to the United States Fish and Wildlife Service in whatever action may be necessary in Congress or otherwise to make these funds available."

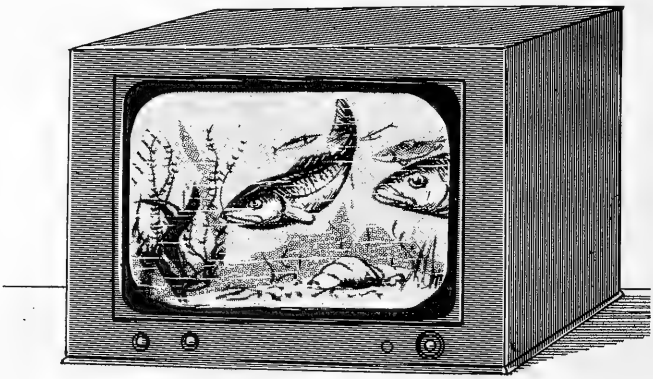
WATER POLLUTION: H. R. 7644 (Buchanan) - a bill to extend the duration of the Water Pollution Control Act, to authorize additional amounts for construction loans thereunder, and for other purposes; introduced in the House on February 2 and referred to the Committee on Public Works.

WILDLIFE RESTORATION PROJECTS: H. R. 7764 (Angell) - a bill to provide that the United States shall aid the states in wildlife restoration projects and for other purposes; introduced in the House on February 8 and referred to the Committee on Merchant Marine and Fisheries. Provides for the spending of an unexpended balance in the Treasury of $13,467,468.71 of Pittman-Robertson funds under the provisions of the Act of September 2, 1937. These funds would be made available to the States and Territories for wildlife restoration projects. Commercial fisheries projects not included.

FISHERIES ON TELEVISION

A series of one-half hour TV lessons on the fisheries of Chesapeake Bay was scheduled for presentation by the Baltimore (Maryland) Department of Education. This is part of an experiment to determine the value of TV in the classroom, according to the Maryland Tidewater News. Twenty-three television sets were provided to the Baltimore schools, but the programs were also for the general public as well as for the school pupils.

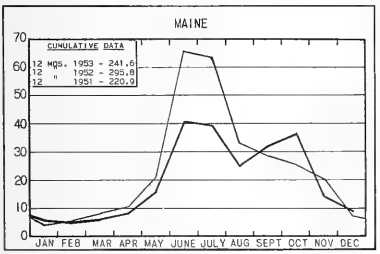
Four topics were included in the series: (1) The Oyster; (2) Fishes of Chesapeake Bay; (3) The Bay Country; and (4) The Blue Crab. Much illustrative material was assembled for the television program, together with a comprehensive working story of the respective topics.

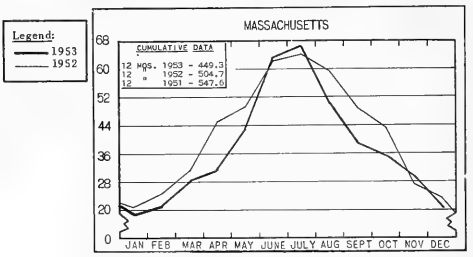


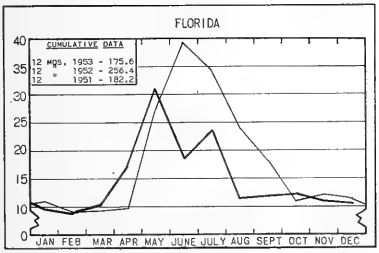
Numerous city and state education departments are conducting or planning TV programs as a part of the curricula in geography, history, economics, and citizenship. The U. S. Fish and Wildlife Service's Branch of Commercial Fisheries has available, on request, copies of three educational fishery films for television showing. These are on the Maine sardine industry, menhaden fishery, and the use of fish in school lunchrooms. In addition, Service home economists and marketing specialists are available for TV demonstrations on the proper handling and cookery of fish and shellfish. A number of these demonstrations have already been given.

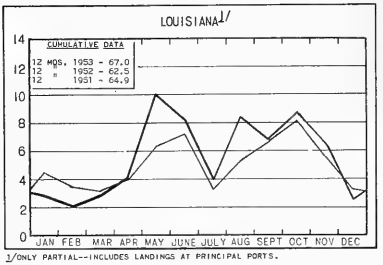
CHART 1 - FISHERY LANDINGS for SELECTED STATES

In Millions of Pounds

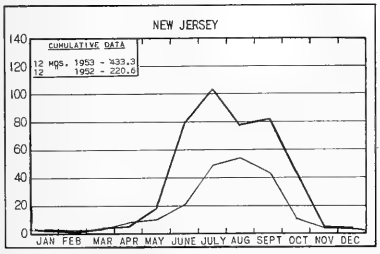


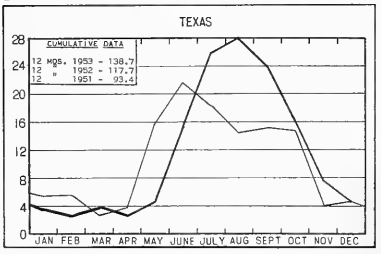


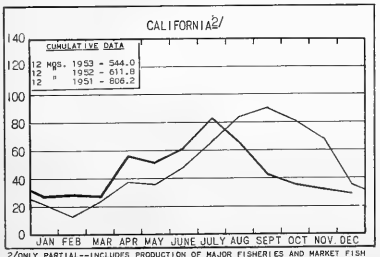




1/ONLY PARTIAL--INCLUDES LANDINGS AT PRINCIPAL PORTS.







2/ONLY PARTIAL--INCLUDES PRODUCTION OF MAJOR FISHERIES AND MARKET FISH LANDINGS AT PRINCIPAL PORTS.

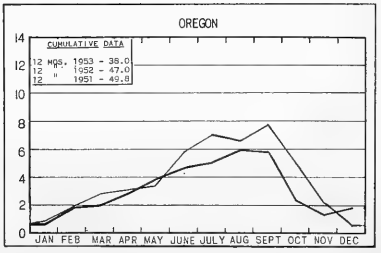
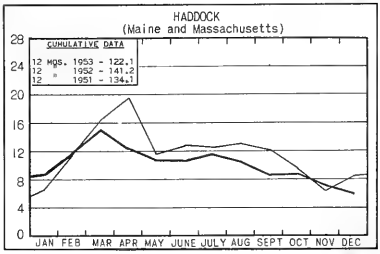
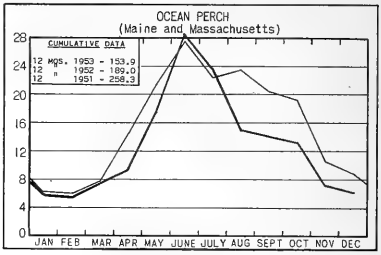


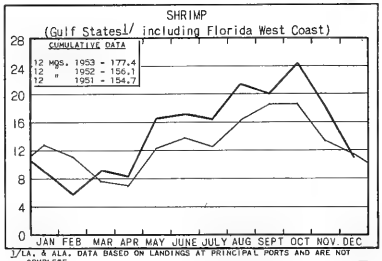
CHART 2 - LANDINGS for SELECTED FISHERIES

In Millions of Pounds

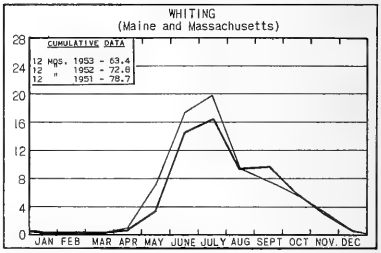




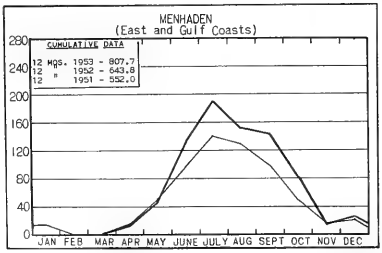
In Millions of Pounds

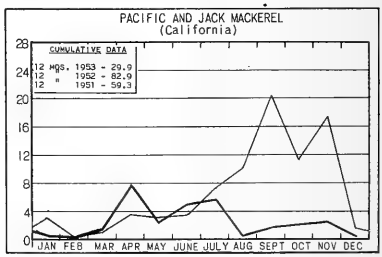


1/LA. & ALA. DATA BASED ON LANDINGS AT PRINCIPAL PORTS AND ARE NOT COMPLETE.

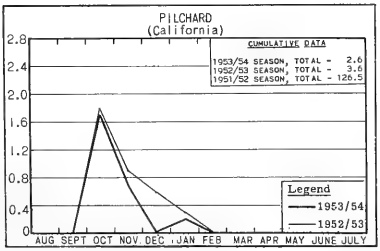


In Thousands of Tons





In Thousands of Tons



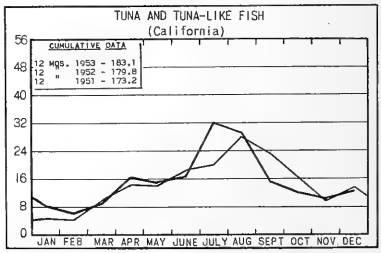
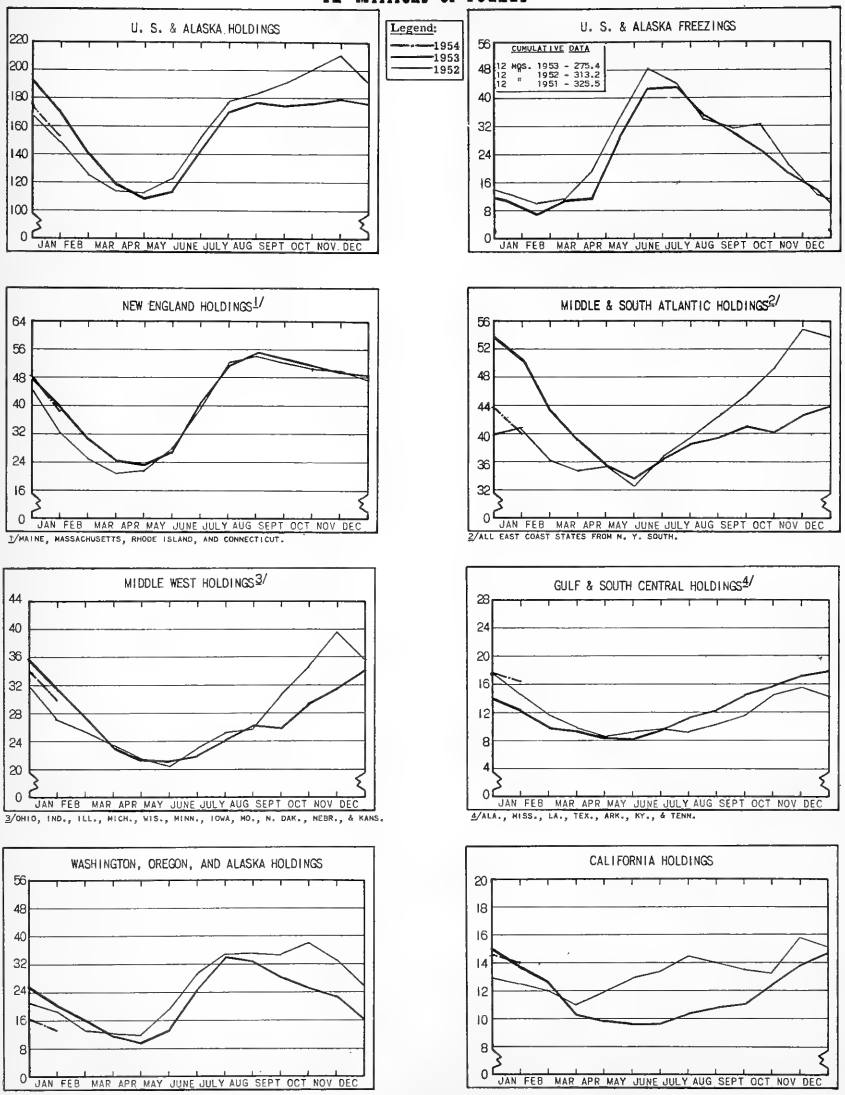


CHART 3 - COLD-STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS *

In Millions of Pounds



*Excludes salted, cured, and smoked products.

CHART 4 - RECEIPTS and COLD-STORAGE HOLDINGS of FISHERY PRODUCTS at PRINCIPAL DISTRIBUTION CENTERS

In Millions of Pound

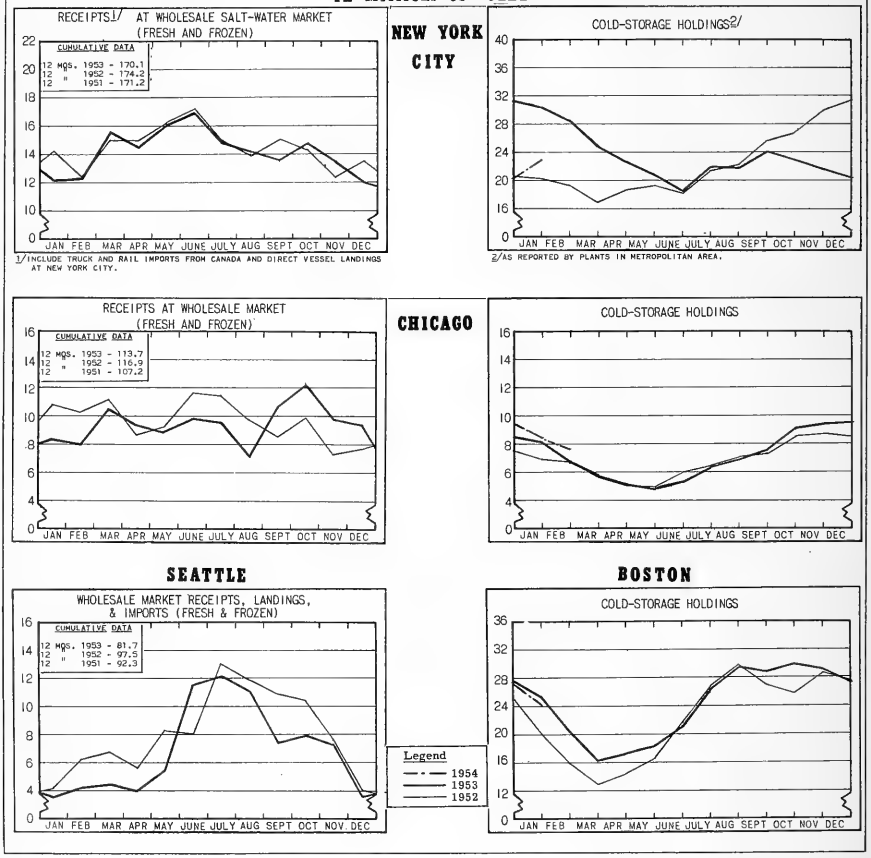


CHART 5 - FISH MEAL and OIL PRODUCTION - U.S. and ALASKA

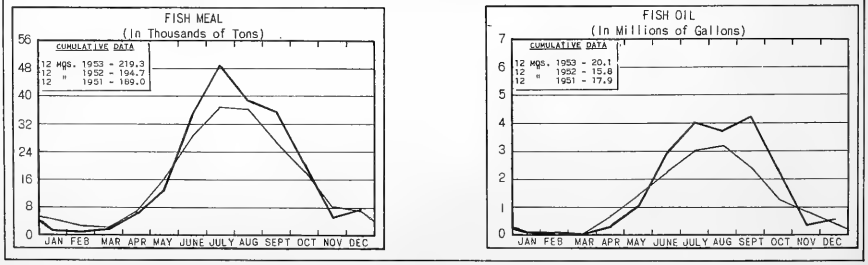
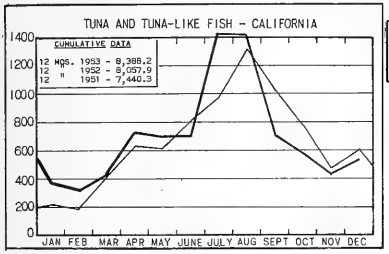
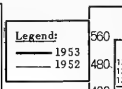
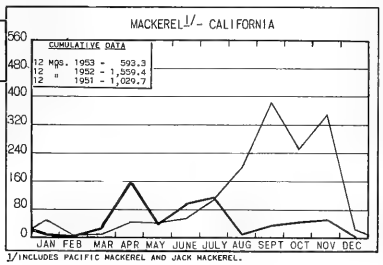


CHART 6 - CANNED PACKS of SELECTED FISHERY PRODUCTS

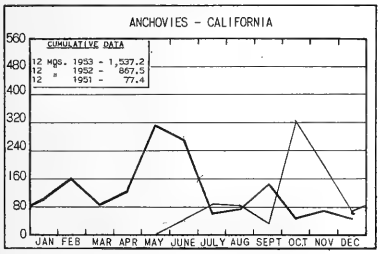
In Thousands of Standard Cases

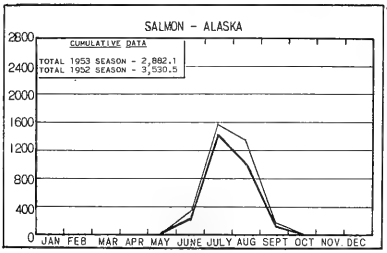


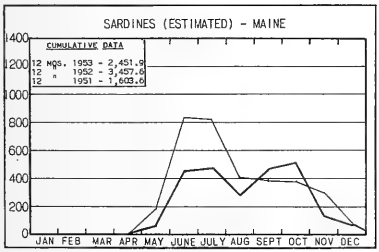




1/ INCLUDES PACIFIC MACKEREL AND JACK MACKEREL.

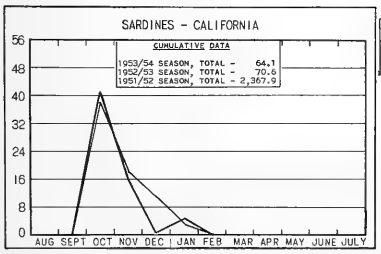






STANDARD CASES

Variety	No. Cans	Can Designation	Net Wgt.
SARDINES	100	¼ drawn	3¼ oz.
SHRIMP	48	—	5 oz.
TUNA	48	No. ½ tuna	6 & 7 oz.
PILCHARDS	48	No. 1 oval	15 oz.
SALMON	48	1-pound tall	16 oz.
ANCHOVIES	48	½ lb.	8 oz.



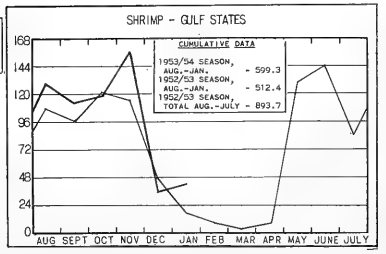
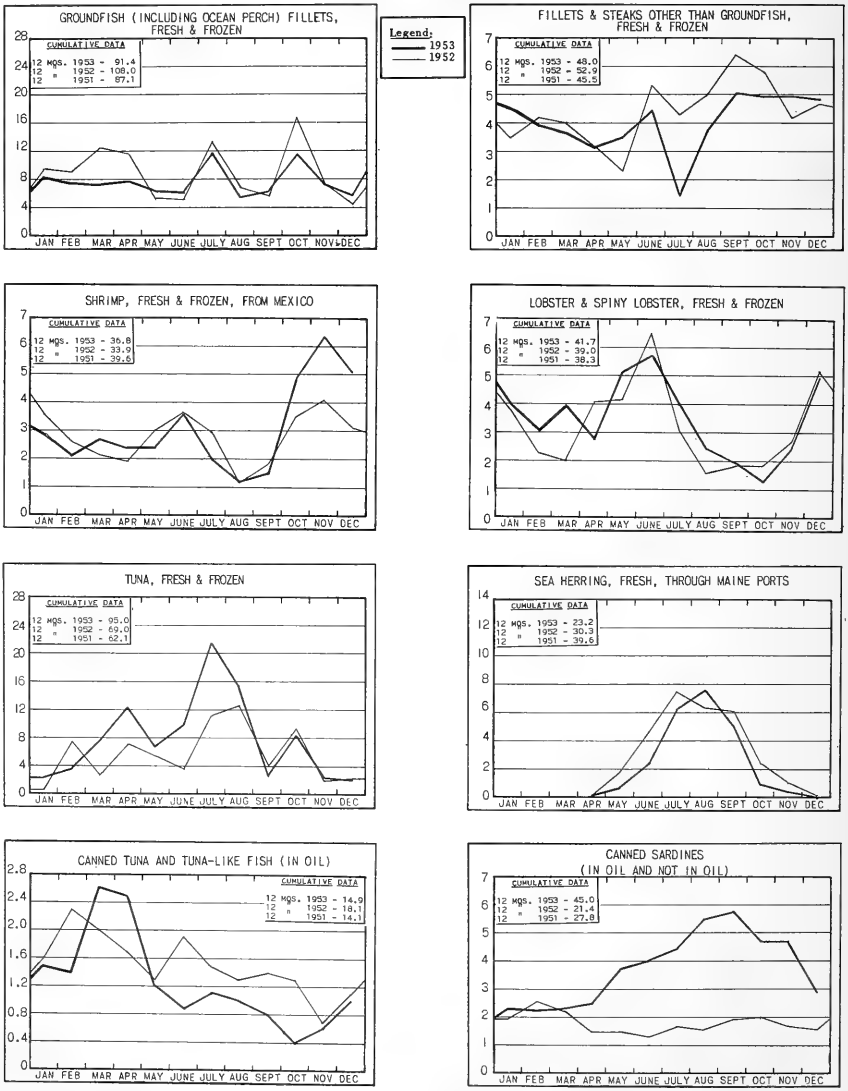


CHART 7 - U.S. FISHERY PRODUCTS IMPORTS

In Millions of Pounds



Recent publications of interest to the commercial fishing industry are listed below.

FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.
FL - FISHERY LEAFLETS.
SL - STATISTICAL SECTION LISTS OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.
SEP.- SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.

Number Title

CFS-936 - Fish Meal and Oil, October 1953, 2 p.
CFS-937 - Florida Landings, September 1953, 6 p.
CFS-938 - Texas Landings, October 1953, 3 p.
CFS-940 - Frozen Fish Report, December 1953, 8 p.
CFS-941 - Mississippi Landings, October 1953, 2 p.
CFS-942 - New Jersey Landings, October 1953, 2 p.
CFS-943 - Maine Landings, October 1953, 5 p.
CFS-944 - Fish Meal and Oil, November 1953, 2 p.
CFS-945 - Florida Landings, October 1953, 6 p.
FL-359 - Manufacturers of Equipment for the Fish Processing Industries (revised), 6 p.

Wholesale Dealers in Fishery Products (Revised):
SL-2 - New Hampshire, 1953, 1 p.
SL-10 - Maryland, 1953, 10 p.

Number Title

Wholesale Dealers in Fishery Products (Revised) (Cont.):
SL-12 - Virginia, 1953, 12 p.
SL-14 - South Carolina, 1953, 2 p.
SL-15 - Georgia, 1953, 2 p.

Sep. No. 365 - Drum Seining--A New Development in the Puget Sound Salmon Fishery.
Sep. No. 366 - Vitamin Content of Fishery Byproducts--Part I - Effect of Processing Methods on Riboflavin, Nicotinic Acid, and Vitamin B_{12} Content of Solubles and Meal.
Sep. No. 367 - Tech. Note No. 29--Effect of Salt on the Storage Life of Salmon Eggs Preserved with Sodium Bisulfite.

THE FOLLOWING SERVICE PUBLICATION IS AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED:

Landings and Prices of Fishery Products, Boston Fish Pier, 1952 (Includes an Analysis of Boston Fishery Landings and Trends), by T. J. Risoli, 23 p., processed, December 1953. (Available free from the Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 10, Mass.) Fish marketing trends and conditions in Boston for 1952 are discussed in this publication. Detailed data on landings and weighted average prices of fish and shellfish landed at the Boston Fish Pier during 1952 are presented. Statistics are given by months and species, together with comparative data for previous years.

THE FOLLOWING SERVICE PUBLICATIONS ARE FOR SALE AND ARE AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

How to Cook Clams, by Kathryn L. Osterhaug and Rose G. Kerr, Test Kitchen Series No. 8, 14 p., illus., printed, 1953, 20 cents. Generously illustrated, this booklet is No. 8 in the Service's Test Kitchen Series of fish cookery publications released by the Service's Branch of Commercial Fisheries, and contains 27 choice recipes for cooking clams. These recipes were developed by home economists of the Service at Seattle, Wash., and College Park, Md. Some of the easy-to-prepare yet out-of-the-ordinary recipes included are stuffed clams, clam au gratin, clam poulette, deviled clam loaf, baked clam hash, sour cream clam pie, clam and spaghetti casserole, and clam and ham scramble. Instructions on how to buy and shuck clams are also found in this booklet.

The Pacific Salmon, Circular 25, 2 p., illus., printed, 5 cents, 1953. Describes very briefly the life history of the five species of salmon native to the Pacific Coast from San Francisco to northeastern Alaska. Although natural reproduction is desirable because of its economy, the hatchery is becoming increasingly necessary to maintain the resource where natural reproduction has become wholly or partly impossible. Diagrams showing the natural life cycle of salmon and the hatchery contribution and a typical salmon hatchery are presented. Interesting facts about salmon are also presented.

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE AGENCIES OR PUBLISHERS MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

(Atlantic States Marine Fisheries Commission) Twelfth Annual Meeting, 163 p., illus., processed. Atlantic States Marine Fisheries Commission, Mt. Vernon, New York, December 1953. Presents the complete minutes of three general sessions and four section meetings of the Atlantic States Marine Fisheries Commission which took place October 8-9, 1953, at New York, N. Y. Under the North Atlantic Section of the report are included discussions of projects dealing with sea scallops; clams; shad; yellowtail flounder; lobsters; ocean perch; dragging operations; trash fishing; reconstruction of the U. S. Fish and WildlifeService's Woods Hole Laboratory; cooperative striped bass program and racial studies; haddock mesh sizes; proposed compact between Massachusetts and Connecticut for restoration of Atlantic salmon in Connecticut River; freezing fish at sea; exploratory fishing for tuna; and catch statistics. Under the Middle Atlantic Section there is a discussion of projects dealing with sea scallops; dragging operations; statement on social legislation in marine fisheries; Delaware River Anadromous Fisheries Management Act; Pennsylvania clam sizes; cooperative striped bass program on racial studies; waste disposal off Cape May; waste disposal off New York harbor; clam investigations; New Jersey sport-fishing inventory; fluke size limits; butterfish; catch statistics; dams in the Delaware River; shad investigation; menhaden studies; New York weakfish (sea trout) study; and sport-fishing licenses. The Chesapeake Bay Section includes discussions of projects concerned with croaker; blue crab; cooperative striped bass program; shad; growth of soft clam industry; weakfish (sea trout) situation; Chesapeake Bay Institute; Potomac River oyster situation; joint legislative seafood study; catch statistics; status of Chesapeake sport fishery survey; and statement on social legislation in marine fisheries. Under the South Atlantic Section a discussion of the following programs is included: cooperative offshore research program; shad investigation; shrimp report; license fees and severance taxes; Florida fishery law revision; Oyster Laboratory at Beaufort, N. C.; catch statistics; gear development; cooperative striped bass program; bluefin tuna; conference of Georgia legislators; transportation of fresh shrimp; license fees salt-water fishermen; and social legislation in marine fisheries. The following are among the papers included in the appendices: "Status of Proposed Federal-State Striped Bass Research Program," by Edward C. Raney; "Freezing Fish at Sea," by Joseph F. Puncochar; "Exploratory Fishing for Tuna, North Atlantic," by John J. Murray; "Summary and Explanation of the Saltonstall Bill, S. 1731," by Branch of Commercial Fisheries; "Trash Fishing Operations," by Statistical Section; "Haddock Mesh Size," by Charles H. Lyles; and "Gear Development Progress in Underwater Listening Experiments and Television;" by Virgil E. Harris.

The Behavior and Reproduction of Salmonid Fishes in a Small Coastal Stream, by John C. Briggs, Fish Bulletin No. 94, 66 p., illus., printed. Bureau of Marine Fisheries, Department of Fish and Game, San Francisco, Calif., 1953. Describes a study undertaken principally in order to obtain information regarding the extent of natural mortality during the egg and larval stages of certain salmonid fishes in a small California stream, to gather essential knowledge of the spawning behavior of these fishes, and to compare the results of such observations with similar evidence from other waters. Part I describes the spawning behavior of silver salmon (Oncorhynchus kisutch), king salmon (Oncorhynchus tshawytscha), and steelhead trout (Salmo gairdneri). Part II describes the reproduction of the salmonid fishes, the Redd sampling program, loss in artificial propagation, aspects of losses in natural propagation, and makes a comparison of artificial and natural propagation.

(British Columbia) Provincial Department of Fisheries Report (with Appendices for the Year Ended December 31, 1952), 110 p., illus., printed. Provincial Department of Fisheries, Victoria, B.C., 1953. The first section of this report is devoted to an analysis of British Columbia's 1952 production and value of fishery products, the canned salmon pack, and a review of the salmon canning industry. Also discussed are the other canning industries (pilchard, herring, tuna, and shellfish), the production of processed fish (mild-cured salmon, dry-salt salmon, dry-salt herring, and pickled herring), the halibut fishery, fish oil and meal, net fishing in non-tidal waters, value of Canadian fisheries and the standing of the provinces for 1951, species and value of fish caught in British Columbia, condition of British Columbia's salmon-spawning grounds, and the herring investigation. The second section includes the following articles: "Contributions to the Life-History of the Sockeye Salmon (Paper No. 38)," by D. R. Foskett; "Results of Investigation of the Herring Populations on the West Coast and Lower East Coast of Vancouver Island in 1952-53, with an Analysis of Fluctuations in Population Abundance since 1946-47," by J. C. Stevenson and D. N. Outram; "Report of the International Fisheries Commission, 1952;" "Report of the Activities of the International Pacific Salmon Fisheries Commission for 1952;" and the "Salmon-spawning Report, British Columbia, 1952." Statistical data on the British Columbia fisheries are also included.

Commission on Foreign Economic Policy Report to the President and the Congress, 99 p., printed, 35 cents. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., January 23, 1954. This report embodies the findings of the Commission on Foreign Economic Policy, which was constituted pursuant to Public Law 215, 83d Congress, 1st. session, approved August 7, 1953. It is a composite of the thinking of the group as a whole. Concurrences or dissents which express significant differences are included as separate statements. The report discusses and makes recommendations on the postwar dollar problem, foreign aid and technical assistance, United States foreign investment, problems of agriculture and raw materials, United States dependence on imported materials, tariffs and trade policy, adjustment to increased imports, labor standards in international competition, related problems of trade adjustment, and currency convertibility. The report attempts to shape a new foreign trade policy for the Eisenhower Administration. (Also see Commercial Fisheries Review, February 1954, p. 25.)

Como Incrementar el Consumo de los Productos Pesqueros en el Uruguay (How to Increase the Consumption of Fishery Products in Uruguay), by Victor H. Bertullo, 1a. Communicacion, 15 p., printed in Spanish. (Reprint from Boletin Mensual de la Direccion de Ganaderia, Ano XXXIV, no. 1, 1953, pp. 35-47) Direccion de Ganaderia, Ministerio de

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM.

Ganaderia y Agricultura, Montevidio, Uruguay, 1953. Describes the method used in estimating the apparent consumption of fishery products in Uruguay; and presents statistics on and discusses ways and means to increase the consumption of fishery products.

"A Comparison of Objective Tests for Quality of Gulf Shrimp," by E. A. Fieger and J. J. Friloux, article, Food Technology, January 1954, vol. 8, no. 1, pp. 35-8, illus., printed, single copies of periodical: domestic US$1, foreign US$1.15. The Garrard Press, 119 West Park Avenue, Champaign, Ill. (Published by the Institute of Food Technologists.) Freshly-caught Gulf shrimp stored in crushed ice were sampled daily for chemical, bacteriological, and organoleptic tests. The correlation of the results of the chemical and bacteriological data to quality and spoilage is discussed. Chemical, bacteriological, and organoleptic studies were made daily on samples taken from ice-stored fresh headless shrimp. Of the four chemical tests used to determine quality, the tyrosine reaction was shown to be of little or no value. Determinations of trimethylamine nitrogen and volatile acids were of value in indicating whether spoilage had occurred, but did not give information of prespoilage changes. Significant increases in bacterial plate counts preceded by 2 or 3 days similar increases in volatile acids and trimethylamine nitrogen values. Amino nitrogen values decreased with increasing storage time and correlated quite well with taste-panel tests of flavor and quality. The results of taste-panel testing is of particular value to the shrimp industry. During the first seven days of ice storage, the shrimp gradually lost their characteristic sweet flavor. This was followed by a period of seven days during which they were tasteless. Beyond 14 days' storage, spoilage occurred with the development of off-flavors. It is postulated that loss of quality during the early period of storage is mainly caused by autolysis and with longer storage spoilage occurs mainly through bacterial action.

"The Determination of Volatile Reducing Substances (V.R.S.) as an Aid in Quality Control of Fish Products," by Lionel Farber and Anne Cederquist, article, Food Technology, December 1953, vol. 7, no. 12, pp. 478-80, printed, single copies of periodical: domestic US$1, foreign US$1.15. The Garrard Press, 119 West Park Avenue, Champaign, Ill. (Published by the Institute of Food Technologists.) The concept of quality is discussed from two points of view; namely, the distinction between an acceptable or wholesome product and one that is not, and the extent to which a given commodity meets some ideal condition or standard. Illustrative data have been presented showing the possible application of the determination of the content of volatile-reducing substances as an aid in evaluating the aforementioned aspects of quality. Data for the content of volatile nitrogen compounds have also been included. Experimentally-obtained data for volatile-reducing and nitrogen compounds in commercial samples of raw and canned fish have been presented. The results show that the Volatile Reducing Substances method offers a means of accurately and practically assessing the quality of a fish product, both in the sense of its wholesomeness and fitness for use and of attempting to establish grades, classes, or ratings as an approach to some condition considered ideal or most desirable for the particular commodity. To accomplish the above purposes, ranges of V.R.S. values for each product will have to be determined, as well as the distribution of the V.R.S. values within each grade or class.

Die Schwedische Westküstenfischerei (The West Coast Fisheries of Sweden), by Nils Rosén (Vol. VIII, part 3a, Handbook of the Marine Fisheries of Northern Europe), 66 p., illus., printed, DM26 (about US$6.50). E. Schweiserbart' sche Verlagsbuchhandlung (Erwin Naegele), Johannes Street 3/1, Stuttgart, West Germany. This work presents a detailed and excellent description of the fisheries on the west coast of Sweden. An introductory section describes the areas covered (mainly the Skagerak, Kattegat, and Sund) as well as the ocean currents prevailing in these areas, the depths which influence greatly the fishing there, and the salt content of the waters, temperatures, light absorption, and the nutritive values of aquatic production. The second section contains a most valuable history of Sweden's fisheries, reaching back to the 11th century. The author has found evidence of large herring catches as early as the year 1000 A. D. During the later centuries herring remained economically the most important species caught on the west coast of Sweden. With the abundance of herring, wealth came to Sweden. If there was a failure of the herring catch, there followed a period of impoverishment. Some of the author's statements on the periodical changes of the herring catch and the resulting changes in the welfare of the fishing industry easily may be applied to some United States fisheries. The second section closes with a description of historical fishing methods and gear formerly utilized in the fisheries of Sweden. The third section contains the description of present-day fishing. The most important fisheries--cod, herring, eel, sprat, haddock, sea pike, flounder, and mackerel--are described in many details, as well as the gear and vessels used, mesh sizes preferred, areas fished, average tonnage of fish caught, and the number of fishermen employed and active in full-time commercial fishing. Photographs of gear and of actual fishing add to the excellent presentation of the facts and figures. Section four contains statistical data on the catches from 1936 through 1950 by areas and by species. The 1950 data also contain values of the catches by areas and by species. A special appendix shows the number of fishermen, gear, vessels, and catches (quantities and values) by species for the governmental districts of Goteborg, Bohus, and Halland. In section five the distribution of the catch is described. "Public Auctions" and "Cooperative Selling" are the two main methods of distribution at the fisherman's level. Since 1934, fish prices are protected in one way or in another by government regulation. Minimum prices have been in effect since 1946. Imports are subject to license. They are also subject to a fee of 5 percent of the invoice value. Also, exports are licensed within the restrictions necessitated by the precarious food situation prevailing generally in Sweden. The per-capita fish consumption in Sweden in 1950 was 17 kg (37.4 pounds). Section six contains data on manufactured and processed fishery products. Salt cod and canned herring are the two main products manufactured. The following section (seven) describes number and location of fishermen, fishermen's villages, number and value of boats, vessels, and gear used. (On the average, the Swedish fishermen turns over his invested capital twice per annum, while the United States fisherman turns it over only once.) The blueprints of boats and vessels in this section are of great help to the reader interested in the construction of fishing boats or vessels. Section eight deals with the organization of the fishing industry, the distribution of the profits (by shares) and the size of the crews on the different vessels. It further describes some fishermen's cooperatives and other industrial associations of fishermen, wholesalers, and retailers of fish. The two final sections (nine and ten) contain valuable material on Sweden's fishery administration and fishery legislation. The fishery administration unit maintains research vessels and laboratories; a fishery loan fund for gear, motors, and vessels; a fishermen's accident insurance; a fishermen's school; and a statistical and an economic service. The legislation mostly refers to the determina-

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tion of "domestic waters;" regulates mesh sizes and types of gear to be used; and for certain species establishes a legal minimum size. The United States reader will find in Dr. Rosén's book a well-prepared presentation of Sweden's most important fisheries, which will enrich his general knowledge of the fisheries and at the same time stimulate thinking on the many unsolved problems facing the United States fisheries.

--R. A. Kahn

"Experiments with the Harbour Seal, Phoca vitulina, a Definitive Host of a Marine Nematode, Porrocaecum decipiens," by D. M. Scott, article, Journal of the Fisheries Research Board of Canada, vol. 10, no. 8, pp. 539-47, printed, C$3.25 per volume. Fisheries Research Board of Canada, Ottawa, Canada, November 1953. The Atlantic cod, Gadus callarias, and several other marine fishes in inshore Canadian waters are commonly infested with a parasitic nematode. Infestation experiments carried out in 1947 and 1948, as described in this paper, showed that the harbour seal, Phoca vitulina, was a definitive host of a larval nematode found in the flesh of the Atlantic cod, Gadus callarias; smelt, Osmerus mordax; Canadian plaice, Hippoglossoides platessoides; and eelpout, Macrozoarces americanus. Adult worms recovered from experimentally infested seals were identified as Porrocaecum decipiens. Some larval Porrocaecum in the four species of fishes studied were P. decipiens. The worms lost their larval characteristics by moulting between the third and sixth day following introduction into the seal. Sexual maturation proceeded rapidly after the eleventh day and some males and females matured before the twentieth day. Maturation was accompanied by a distinct increase in size.

"Fisheries Rehabilitation in North Idaho," by Paul Jeppson, article, Idaho Wildlife Review, vol. VI, no. 3, November-December 1953, pp. 10-11, illus., printed. The Idaho Fish and Game Commission, Boise, Idaho. The control of undesirable species of fish is important as a fisheries management method in north Idaho where these species make up the greater portion of the fish found in many lakes and larger rivers. When an area has been productive of game fish but a natural increase of trash fish is evident, it is usually sound management to attempt to control the undesirable species. In Idaho, seining, trapping, gill-netting, poisoning, shocking, dynamiting, or draining for the purpose of taking undesirable fish are limited to operations conducted or closely supervised by the Fish and Game Department. Hoop nets, gill nets, drag seines, dynamite, and rotenone are used in lakes, and hoop nets, dynamite, and rotenone in rivers as the principal methods of removal or eradication. Comparatively few fish are taken from the rivers; however, experiments conducted on the St. Joe River indicate that large numbers of squawfish and suckers can be eliminated in dewatered channels of the river during the late summer low-water period by using rotenone. From 20 to 60 tons of trash fish, principally tench and suckers, have been taken annually from the waters of north Idaho by State-supervised fishermen using hoop nets.

Fisheries Year-Book and Directory, 1952-53 (Incorporating the World Fisheries Year-Book, North Atlantic Fisheries Year-Book, and the Herring Exporters Manual), edited by Harry F. Tysser, 404 p., illus., printed. British-Continental Trade Press Ltd., 222 Strand, London, England. An international reference book and directory of the fishing and fish-processing industries. The articles which make up the first part of the book cover the following subjects: The British Fishing Industry; Denmark's Fishing Industry; The Icelandic Fisheries; Federal Germany's Seafisheries and Fish Imports; Around the World (covers the fisheries of the more important countries); Refrigeration Progress; Smoked Salmon Trade Expansion; Smoke-Curing of Fish; World Distribution of Food Fish; International Council for the Exploration of the Sea; English Fishery Research; Progress Report from the Torry Research Station; Fishing Nets--A World Index; Fish Oils; The Use of Measuring and Controlling Instruments; Developments in Fishing Vessel Construction; and Developments in Canning Technique. The first part of the book also contains a fish supply calendar (tabulated by kind of fish, area of catch, and months of supply); a list of trade journals of interest to the fishery industry; a list of organizations and trade associations; and a dictionary of fish names. The second half of the book is a directory which lists names, addresses, and other particulars on firms in various branches of the fishery industries, grouped by countries. The lists included are: (1) exporters and curers, quick freezers, trawler owners; (2) importers and wholesalers; (3) fish canners and preservers; (4) machinery and equipment for fish processing, refrigeration, etc.; (5) packing machinery, materials, etc.; (6) supplies for fisheries (ship builders and repairers, ship chandlers, nets and cordage, instruments, and other equipment); (7) fish byproducts (meal, oil, vitamins, etc.); and (8) cold storage and transport. Also included is a list of trade marks and names and a buyers' guide and classified list of advertisers.

"Fishing in the Whirlpool of Charybdis," by Paul A. Zahl, article, The National Geographic Magazine, November 1953, vol. CIV, no. 5, pp. 579-618, illus., printed, 65 U. S. cents per issue. National Geographic Society, Washington 6, D. C. Myriad strange creatures inhabiting sunless ocean depths generate brilliant patterns of cold light like that of fireflies. To study these deep-sea fishes, the author spent several months at the Strait of Messina, between Sicily and the Italian mainland, where a rich variety of marine life is periodically swept up by whirling currents and strong winds. This article describes in detail the search for deep-sea fishes in the Messina whirlpools, and presents the author's unique series of color photographs of deep-sea fauna.

(FAO) Present Status and Prospectives of the Fishery Industry in Latin America, by Jorge d'Alarcao, 64 p., processed. Food and Agriculture Organization of the United Nations, Rome, Italy, April 1953. (United Nations Economic and Social Council, General Report E/CN 12/325.) The original report was presented at the Fifth Session of the Economic Commission for Latin America, Rio de Janeiro, Brazil, April 9, 1953.) This paper contains an interpretation and compilation of facts and data which have been made available to FAO through the work of experts in the field or by information supplied by the countries involved in the postwar study of the problems of economic development of the fisheries in Latin America. Latin America as a whole has shown steady progress in the development of its fisheries since the end of World War II, and in certain restricted areas in Chile, Brazil, Peru, Venezuela, and Mexico there are already the nuclei of large fisheries industries, including the processing industries such as freezing and canning. The industry in general is, however, still at an elementary stage of economic development where primitive techniques and small-scale production prevail. The main economic causes of the low level of fish production in the region are low productivity per fisherman, defective techniques in marketing and transportation, consumer discrimination in favor of other foodstuffs, the availability of other sources of food supplies competitive in

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price and nutritional value, and, principally, the inadequate purchasing power of the lower income groups. Food shortages during the war provided incentives for the capital investment which led to large and successful exploitation of fisheries resources in a few areas of Latin America. There is still an incentive to much greater capital investment either by the governments, private sections of the economy, or by foreign investment in all Latin American countries. That incentive is the large potential domestic market which, with provision of steady supplies of fish at stable prices and, above all, with improvements in processing, transport, and sanitary distribution, will become an active consumer's market. Statistical data on landings of fish and shellfish, imports, and exports for the various Latin American countries are contained in an appendix. The first part of the report discusses labor productivity in fishing; equipment; labor; production; freezing, curing, canning, and byproducts industries; demand and prices; foreign trade; investments; and industrial organization and government intervention. Projects and prospectives of fisheries development in Latin America are presented.
NOTE: Also see Commercial Fisheries Review, July 1953, pp. 42-44.

"The Growth Rate of the American Lobster (Homarus americanus)," by D. G. Wilder, article, Journal of the Fisheries Research Board of Canada, vol. X, no. 7, pp. 371-412, illus., printed, C$3,00 per volume in Canada and the United States, and C$3,25 in other countries. Fisheries Research Board of Canada, Ottawa, Canada, September 1953. Data are presented on the natural growth of larvae, and on the growth of marked 15- to 25-cm. lobsters, recaptured 4 to 12 months after release. An attempt was made to estimate the ages of the smaller commercial-sized lobsters in the Northumberland Strait area. Towing with a plankton net especially designed for the capture of lobster larvae was conducted in the western part of Northumberland Strait between Richibucto, N.B., and Miminegash, P.E.I., from mid-June to late September each year from 1948 to 1952. Carapace measurements of lobster larvae caught in the western part of Northumberland Strait showed that in this area the natural growth in length per molt is 34.4 percent from stage 1 to stage 2, 31.8 percent from stage 2 to 3, and 30.3 percent from stage 3 to 4. The seasonal distribution of the first four larval stages was determined from plankton tows made continuously from mid-June to late September each year from 1948 to 1952. To determine natural annual growth, lobsters of 15 to 25 cm., total length, were sorted into five or six size groups and were distinctively marked by means of holes punched through the tail fan. These were liberated on six widely separated fishing grounds in the Maritime Provinces. Recoveries of these marked lobsters 4 to 12 months after release showed that in the southern Gulf of St. Lawrence, 15- to 20-cm. lobsters grew 8 to 9 mm. (13 to 15 percent) in carapace length, 22 to 25 mm. (13 to 14 percent) in total length, and 80 to 95 grams (45 to 53 percent) in weight. In southern Nova Scotia and Grand Manan 20- to 25-cm. lobsters grew 10 to 12 mm. (13 to 15 percent) in carapace length, 27 to 34 mm. (12 to 15 percent) in total length, and 170 to 220 grams (43 to 54 percent) in weight. From the carapace length of 4th-stage larvae and straight-line equations relating carapace length before molting and carapace length after molting, the average carapace lengths of lobsters in stages 5 to 20 were calculated. From observations and calculations on the growth per molt and molting frequency, it is estimated that in the Northumberland Strait area lobsters reach a length of 14 cm. (5-1/2 in.) at the end of the fifth growing season (4-1/4 years old) and 24 cm. (9-1/2 in.) at the end of the ninth growing season (8-1/4 years).

Gulf States Marine Fisheries Commission Fourth Annual Report 1952-53 (to the Congress of the United States and to the Governors and Legislators of Alabama, Florida, Louisiana, Mississippi, and Texas), 27 p., printed, Gulf States Marine Fisheries Commission, 312 Audubon Bldg., New Orleans 16, La. Contains the Commission's activities for the period October 1952-October 1953. Summarizes the principal activities of the marine fisheries administration of each of the Gulf States in the interest of bringing about the proper utilization of the fishery resources. Plans for future investigations are presented. Included are short discussions of the U. S. Fish and Wildlife Service activities in biological research and exploratory fishing in the Gulf area. Describes an oceanographic survey of the Gulf of Mexico and oyster investigations. A financial report of the Commission is included.

(International Commission for the Northwest Atlantic Fisheries) Annual Proceedings for the Year 1952-53, vol. 3, 88 p., illus., printed. International Commission for the Northwest Atlantic Fisheries, Halifax, N.S., Canada, 1953. At the third annual meeting, the Commission decided to establish its publications in two annual series, a "Statistical Bulletin" and an "Annual Proceedings." The Statistical Bulletin will deal with the fisheries statistics of the convention area, mainly those for the year in question, but also with statistics for former years collected and compiled by the Commission. The Annual Proceedings will contain the Commission's reports for the year in question: the administrative report, the report of the annual meeting, summaries of research by participating countries, certain scientific papers especially prepared for the annual meeting, and an annotated list of papers of special interest to the Commission's work. The present Annual Proceedings includes an administrative report and financial statements for the fiscal year ending June 30, 1953; report of the Third Annual Meeting; and summaries of research during 1952 by countries and subareas. Presents the following scientific papers specially prepared for the annual meeting: "Identification of Major Groundfish Stocks in Subarea 4 of the Northwest Atlantic Convention Area," by W. R. Martin; and "Knowledge of Divisions of Stocks of Cod, Haddock, Redfish, and American Plaice of Subareas 3 and 2 of the Northwest Atlantic Convention Area," by W. Templeman. Also includes the following contributions to a special meeting on long-term hydrographic changes and their effects on fish stocks in the Northwest Atlantic area; "Introductory Remarks," by J. L. Kask; "Changes in the Distribution of Marine Animals in New England and Middle Atlantic Waters in Relation to Changes in Temperature," by Clyde C. Taylor and Herbert W. Graham (authors' abstract); "Long-Term Changes in Hydrography and Fluctuations in Fish Stocks," by A. Vedel Taning; and "Long-Term Changes in Hydrographic Conditions and Corresponding Changes in the Abundance of Marine Animals," by Wilfred Templeman and A. M. Fleming.

"Ionizing Radiations for the Control of Fish Spoilage," by J. T. R. Nickerson, E. E. Lockhart, B. E. Proctor, and J. J. Licciardello, article, Food Technology, January 1954, vol. 8, no. 1, pp. 32-4, illus., printed, single copies of periodical: domestic US$1, foreign US$1.15. The Garrard Press, 119 West Park Avenue, Champaign, Ill. (Published by the Institute of Food Technologists.) A study was made of the effect of cathode rays on control of fish

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spoilage caused by bacteria. Haddock fillets were irradiated with supervoltage cathode rays and then stored at 36°-40° F. The dose levels used were 4×10^5, 5×10^5, and 6×10^5 rep at 2 m.e.v. and 6×10^5 and 7×10^5 rep at 3 m.e.v. Standard plate counts, trimethylamine nitrogen analyses, and organoleptic examinations were made on the irradiated and control samples at the start and after 2 to 6 weeks of storage at refrigerator temperatures above freezing. The results showed that high-voltage cathode rays may be used to destroy bacteria on haddock fillets, thereby extending the storage life of such products when held at refrigerator temperatures above freezing. Much lower doses of ionizing radiations were used for this purpose than would be required to destroy all microorganisms that might be present on fish fillets. From the standpoint of destruction of bacteria and the extension of storage life at temperatures of 36°-40° F. (2.2°-4.4° C.), energies of 3 m.e.v. gave better results than energies of 2 m.e.v. at the same dose level. This indicates that some penetration into the flesh of the fish fillet is necessary to bring about an effective destruction of microorganisms. Statistical analysis of the results of organoleptic tests made on irradiated samples held as long as six weeks at 36°-40° F. and on controls preserved by freezing indicated that the irradiated samples might be considered acceptable.

"Israel's Fish Problem," by H. W. Richardson, article, Foreign Trade, vol. 14, no. 365 (December 26, 1953), pp. 23-4, printed, single copy 10 Canadian cents. Department of Trade and Commerce, Ottawa, Canada. (Available from The Queen's Printer, Government Printing Bureau, Ottawa, Canada. Describes Israel's young fishing industry which provides only one-third of the fish consumed in that country. Consumption has dropped from 45 to 32 pounds per capita a year because of several factors. Import restrictions are severe and as long as Israel's payment problems remain acute, there is little likelihood of a more liberal policy. At present Israel buys her fish from soft-currency countries. Then there is the matter of price; imported fish sell at higher prices because of changes in exchange rates. Additional problems involving the fish supply are the smaller local fish production because of poor deep-sea catches, food rationing, and a population swelled by continuing immigration. A short description of Israel's fishing industry is included.

(Japan) "Marking Experiment of the Young Herring (Clupea pallasii) in the Pacific Coast of Hokkaido, 1949-52," by Heihachi Kondo and Hitoshi Kitahama, article, Bulletin of Hokkaido Regional Fisheries Research Laboratory, No. 9, pp. 17-56, illus., printed, in Japanese and summary in English. Hokkaido Regional Fisheries Research Laboratory, Yoichi, Hokkaido, Japan, November 1953. Describes the results of marking experiments conducted on the Pacific coast of Hokkaido since 1949. These experiments were made to clarify the relation between the spring herring of the Japan Sea coast and the young herring of the Pacific coast of Hokkaido and to determine the migration route of the young herring. A general outline of the seasonal movement of the young herring was made from the results of the tagging experiment, and it was confirmed that the herring in various districts on the Pacific coast are of the common group. Recovery of one fish on the Japan Sea coast suggests a relationship between the Pacific coast's young herring and the Japan Sea's spring herring.

The Life History of the Cabezon, SCORPAENICHTHYS MARMORATUS (Ayres), by Charles P. O'Connell. Fish Bulletin No. 93, 80 p., illus., printed. Bureau of Marine Fisheries, Department of Fish and Game, San Francisco, Calif., 1953. Describes the cabezon (Scorpaenichthys marmoratus), a species of minor economic importance which has gained considerable popularity during the past 15 years in the California sport fishery. In view of the sixfold increase in sport landings of the cabezon since the end of the war, the drain on the population may conceivably reach proportions capable of diminishing the stock in the foreseeable future. Should increasing demand for the cabezon eventually elevate it to a position of greater economic importance in the California catch, a knowledge of its biology would be desirable. To this end, the information here presented will facilitate further study of the species and ultimately contribute to its management. Statistical data and discussions are included on the commercial and sport catches, range and habitat, food and feeding, reproduction, larval development, length-weight relationship, age and growth, and color variations of the cabezon.

"Pilchard Shoals in South-West Australia," by A. M. Rapson, article, Australian Journal of Marine and Freshwater Research, vol. 4, no. 2, November 1953, pp. 234-250 and Plates 1, 2, & 3, illus., printed. Australian Journal of Marine and Freshwater Research, Commonwealth Scientific and Industrial Research Organization, 314 Albert Street, East Melbourne C.2, Victoria, Australia. The distribution of pilchard shoals from echo-sounder records, obtained on the fisheries research vessel Warren between Albany and Esperance, is described. Data from echograms and ring-net catches are used to estimate the density of fish in shoals. A method of estimating the number of shoals of pilchards per acre has been developed, using the sounder as a surveying instrument. The quantity of shoal pilchards on two parts of the coast has been calculated. Dispersal of shoals when feeding conditions are good is deduced after examination of pilchard stomachs and N70 tow-net hauls. Movements along the coast are inferred from the distance shoals must travel to obtain a full feed. The selection and avoidance of certain classes of food are discussed. The manner in which shoals come to the surface is described, and observations are made on behavior of fish in surface shoals.

"A Possible Initial Condition for Red Tides on the Coast of Florida," by L. Basil Slobodkin, article, Journal of Marine Research, vol. 12, no. 1, pp. 148-55, illus., printed, $1.50 per number. Sears Foundation for Marine Research, Bingham Oceanographic Laboratory, Yale University, New Haven, Conn., 1953. Describes a study of the conditions which exist when red tides occur on the coast of Florida. According to the author, "It is considered likely that red tide outbreaks are initiated by the occurrence of discrete masses of water which differ in salinity and chemical characteristics from the normal water of the Florida coast. The abnormal nutrient concentrations found in 1947 can be explained on the basis of vertical stratification of the organisms. Upwelling or other purely marine phenomena are superfluous assumptions. Once the nutritional requirements of the dinoflagellates are satisfied, the limiting condition for a bloom is the rate of diffusion of the physiologically suitable water mass. Prediction of red tides will depend on intimate knowledge of coastal drainage and hydrography. Prevention of most red tides may be possible by altering the drainage pattern of the Charlotte Harbor-Calloosahatchee estuary region."

"Preliminary Experiments Using Lights and Bubbles to Deflect Migrating Young Spring Salmon," by J. R. Brett and D. MacKinnon, article, Journal of the Fisheries Research Board of Canada, vol. 10, no. 8, pp. 548-59, illus., printed,

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C$3.00 per volume in Canada and the United States, and C$3.25 in other countries. Fisheries Research Board of Canada, Ottawa, Canada, November 1953. The problem of altering the downstream migratory path of young salmon, with a view to their safe passage around destructive barriers, is one of prime importance in fisheries conservation. Experiments to deflect young spring salmon (Oncorhynchus tshawytscha) during their nighttime migration by means of a beam of light and/or a "wall" of bubbles were conducted in a canal near Courtenay, B.C. By use of hoop nets it was discovered that under natural conditions no significant difference existed in the respective catches of the spring salmon underyearlings moving downstream on either side of the canal. A significant difference was obtained, however, when a narrow beam of light was directed into the water at a downstream angle in front of one net. A reduction to about one-third the expected catch resulted with either continuous or flashing light. The "wall" of bubbles, in a similar position, did not reduce the catch. Cutthroat trout fry and hatchery-reared Kamloops trout fingerlings were not deflected under these conditions.

"The Problem of Sea Water Pollution," by John W. Mann, article, The Department of State Bulletin, December 7, 1953, vol. XXIX, no .754, Publication 5301, pp. 775-80, printed, 20 cents per issue. (For sale by Superintendent of Documents, Washington 25, D. C.) For well over half a century governments have legislated separately against the preventable release into their navigable waters of polluting refuse matter. The discharge of oil and oily water, with consequent fouling of beaches and harbors, fire hazard, and injury to fish and wildlife, has been particularly objectionable. In some countries shipowners and petroleum associations have conducted studies and voluntarily taken preventive measures. The subject has also been considered internationally and is presently being studied under the auspices of the United Nations. This paper discusses oil pollution as an international problem, and describes the presentation of the problem to the League of Nations, and action by the United Nations.

"Responses of Coho and Chum Salmon Fry to Current," by Dixon MacKinnon and William S. Hoar, article, Journal of the Fisheries Research Board of Canada, vol. 10, no. 8, pp. 523-38, illus., printed, C$3.00 per volume in Canada and the United States, and C$3.25 in other countries. Fisheries Research Board of Canada, Ottawa, Canada, November 1953. Pacific salmon, dwelling in the turbulant streams on the mountainous west coast of North America, must react to currents which change drastically from day to day and from place to place. A difference has been observed in the character of response which coho fry (Oncorhynchus kisutch) and chum fry (O. keta) make to currents. This difference seems to explain, in part, why the former species remains in the rivers while the latter moves into the sea. This paper describes the current-preference experiments which were conducted at Nile Creek, B.C., during the spring and summer of 1950, and at Port John, B.C., in 1951 and 1952. Chum and coho salmon fry respond positively to changes in water flow by swimming against the current. The magnitude of the response varies with the intensity of the current. Currents eliciting optimum response differ for the two species. Both species respond to the stronger of two parallel laminar currents but, after a time, coho fail to discriminate between small differences while the chums move continuously into the greater flow. No evidence of adaptation is apparent in a two-hour period with rapid complex turbulences. In turbulent water coho fry make a sharper initial response than chum fry but do not seem to maintain the peak response over as wide a range of turbulences.

"Sea Life in the Arctic," article, Trade News, November 1953, vol. 6, no. 5, pp. 3-5, illus., processed. Department of Fisheries, Ottawa, Canada. For seven successive years the Fisheries Research Board of Canada has sent a trained team of scientists northward wresting more and more secrets about sea mammals, fish, and other related subjects from comparatively little known waters. Even the waters themselves are being measured for temperatures, salinity, density, and oxygen. The reason for these yearly trips is primarily to expand Canada's knowledge of marine resources, which could serve to raise the living standards of the natives. The Calanus, a combination experimental fishing vessel and floating laboratory, has been used to carry out the progressive research program into the physical and biological oceanography of Canada's Eastern Arctic waters, and the results so far are presented in this paper.

The State of Maine's Best Seafood Recipes, 30. p., illus., printed. Maine Department of Sea and Shore Fisheries, Augusta, Maine. The Maine Development Commission and Maine Department of Sea and Shore Fisheries have gathered together in this booklet many fine recipes, developed by Maine housewives, for cooking the fish and shellfish taken from the waters just off the coast of Maine. These recipes have been passed down from mothers to daughters for generations. Recipes for baked, boiled, fried, and broiled fish and shellfish are presented. Recipes for stews, chowders, casserole dishes, canapes, spreads, and salads are also included, as well as a guide for buying fish. The booklet has some fine color illustrations.

"The Use of Catch-Effort and Tagging Data in Estimating a Flatfish Population," by K. S. Ketchen, article, Journal of the Fisheries Research Board of Canada, vol. 10, no. 8, pp. 459-85, illus., printed, C$3.00 per volume in Canada and the United States, and C$3.25 in other countries. Fisheries Research Board of Canada, Ottawa, Canada, November 1953. The purpose of this paper is (1) to compare the estimates of a population of flatfish as obtained through the use of information on catch-effort and tag recoveries, (2) to demonstrate how the DeLury method may be extended with the aid of tagging data to account effectively for immigration and emigration, and (3) to use the results of this extension in company with data on catch and rate of exploitation to compute the total stock of fish. By a modification of the DeLury method an estimate is made of the stock of lemon sole (Parophrys vetulus) on the fishing grounds in Hecate Strait, British Columbia. The method is based on (1) the trend in catch of tagged fish per unit of effort in relation to accumulated catch of tagged fish, and (2) the trend in catch of untagged fish per unit of effort in relation to accumulated catch of untagged fish. At the start of the experiment 4,72 million pounds are estimated to have been present, while during the experiment 3,74 million pounds entered the area of fishing, 3,26 million pounds emigrated from it, and 2,54 million pounds were caught. A Petersen-type estimate based on the ratio of tagged to untagged fish was 4,70 million pounds present at the start of the experiment--practically identical with the one derived from catch-effort information. Total population for the year 1950 is estimated at 9,8-12,2 million pounds, including catch and possible emigration prior to the experiment, the stock on the fishing grounds at the start of the experiment, and the immigration subsequently. The average annual survival rate of age VII-age IX lemon soles in Hecate Strait

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has decreased from 0.770 to 0.614 during the period of growth of the fishery, 1944-1951. From this difference the average rate of exploitation is estimated as 16 to 20 percent and the average population as 8.9 to 11.5 million pounds. Since this range is nearly the same as the range described above, it is concluded that almost the whole of the Hecate Strait stock was accessible to fishing in 1950, which was a year of unusually high production.

World Population and Production by W. S. Woytinsky and E. S. Woytinsky, 1268 p., printed, illus., US$12. The Twentieth Century Fund, New York, N. Y., 1953. This massive volume is the sole work of the authors and was prepared without the aid of research workers or collaborators. Included in its almost 1,300 pages are 497 tables, 338 figures, 37 pages of source references, an alphabetical list of authors, and a subject index. Chapter 20, "Fisheries," covers 32 pages, including 12 tables and 6 figures. It represents a review of broad fishery fields, largely from the 53 fishery reference works listed in the source of references. The major topics discussed in the chapter include Life in the Water, Major Fishing Areas, Products of the Sea, Fishery in the Past, Fishery Today, Whaling and Sealing, Conservation of Marine Resources, and Outlook. Under Outlook the authors report that fish do not supply an important part of the diet in many countries, only 3 percent of the food and 2 percent of the protein coming from this food source. But the fisheries do have advantages. They replenish themselves, and, while not inexhaustible, the resources are very large. And probably "fish supply proteins and fats at a much lower cost at the point of production than livestock." The more important obstacles to fuller development of marine resources are listed as "insufficient knowledge of marine life, insufficient recognition of the food value of fish, conservatism in eating habits, and lack of international cooperation in the management of marine resources."

The Chapter on Fisheries comes under Part III, which is devoted to Agriculture. The other four parts of the book deal with Man and His Environment, World Needs and Resources, Energy and Mining, and Manufactures.

--A. W. Anderson

TRADE LISTS

The Commercial Intelligence Branch, Office of International Trade, U. S. Department of Commerce, has published the following mimeographed trade lists. Copies of these lists may be obtained by firms in the United States from that Office or from Department of Commerce field offices at $1.00 per list:

Canneries - Norway, 15 p. (August 1950). Includes canneries of fishery products. Lists the names and addresses, size of firm, and type of products packed of all canneries in Norway.

Canneries,- Denmark, 9 p. (November 1953). Includes canneries of fishery products. Lists the names and addresses, size of firm, and type of products packed. Only the more important plants have been included in this list. "The main factor in the Danish canning industry is the meat processing industry, but canned fish products have also assumed importance in recent years," the report states.

FOSSILIZED FISH FOUND IN NORWAY

A school of some 40 fossilized fish were recently discovered embedded in rock in the district of Ringerike, Norway, about 30 miles north of Oslo. Of a previously unknown type, the fish are estimated to be 350 million years old.

Completely intact with heads, eyes, tails, and fins clearly outlined, the fossilized specimens were identified as belonging to a group known as cephalaspids, one of the earliest vertebrate types. The find was made by Dr. Robert Denisen of the Chicago Museum of Natural History, and professors Leif Stormer and Anatol Heintz of the Paleontological Museum in Oslo.

The Paleontological Museum in Oslo has a rare collection of primitive fishes, sea scorpions, and crustaceans, discovered in the same district back in 1911 by professor Johan Kiaer of Oslo University. One of the sea scorpions, now on display at the museum, is over 31 inches long.

CONTENTS CONTINUED

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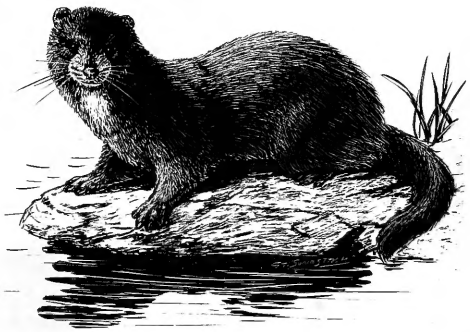
SALMON CANNERY WASTE FOR MINK FEED

The experimental work by the Fishery Products Laboratory (Ketchikan, Alaska) and the Experimental Fur Station (Petersburg, Alaska) in feeding mink with waste from the salmon canneries is summarized in Fishery Leaflet 405, Salmon Cannery Waste for Mink Feed.

For years, whole salmon has been the most economical and easily obtainable mink food from late fall to early spring and is still the preferred ration ingredient of most mink ranchers in Alaska for winter feed, but since early in the 1940's salmon prices have been steadily rising. As a result salmon is no longer an economical mink feed. Regulations governing the taking of this fish have become more stringent with the result that now it is impractical to feed whole salmon to mink.



In a search for an economical feed ingredient available in quantity to replace whole salmon, the Experimental Fur Station at Petersburg, Alaska, instituted several feeding studies in 1945, 1946, and 1947. These studies utilized different percentages of salmon heads (obtained from Petersburg, Alaska, canneries) in the mink and fox diet. The results of these trials varied considerably and in general were inconclusive. They showed the necessity of further work.

The Fishery Products Laboratory at Ketchikan, Alaska, has made a number of studies designed to find practical uses for the waste from salmon canneries and hence cooperated with the Experimental Fur Station in this study of the use of salmon waste in the diet of mink. In this study the main concern was in determining the suitability of salmon cannery waste either raw frozen or processed as the main component of mink rations.

These are the conclusions arrived at by the authors:

(1) Frozen pink salmon cannery waste shows considerable promise as the main protein portion of the ranch mink diet.

(2) Both adult and kit mink (3 months or older) made better weight gains when fed raw frozen salmon waste than when fed any of the other fish products tested (processed pink salmon waste, frozen flounders, frozen pink salmon heads, frozen red rockfish, frozen whole pink salmon, frozen ling cod, and frozen halibut heads).

(3) Frozen raw pink salmon waste is a more satisfactory protein ingredient than the processed waste when used for feeding female mink during the breeding and gestation period up to the weaning of the young.

(4) Subject to further tests, the authors are unable to recommend feeding pink salmon waste to young mink approximately 1 to 3 months of age.

Fishery Leaflet 405 is available free from the Division of Information, U. S. Fish and Wildlife Service, Washington 25, D. C.